حمل الآن

مجانا وحصريا

امتحانات رقم (1)



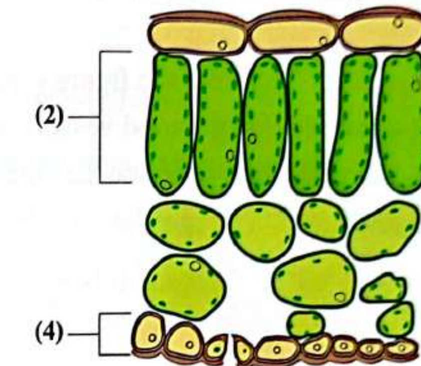




General Exam 1 2025

First Choose the correct answer (1 : 20) *1 Mark for each*

1 The opposite figure illustrates a part of the transverse section in a leaf of a plant, which of the following tissues is the most efficient to perform the photosynthesis process ?

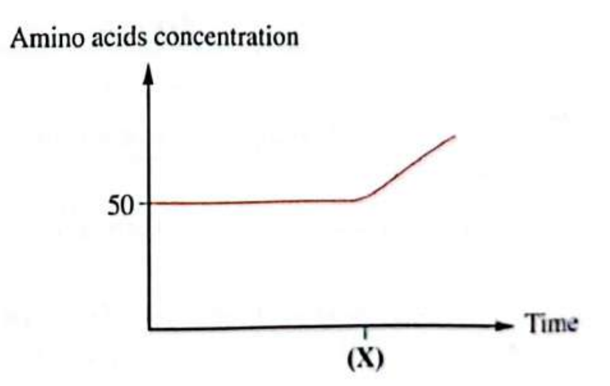


ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

2 The sieve tubes share the companion cells in the presence of ....

ⓐ cytoplasm. ⓑ mitochondria.
ⓒ nucleus. ⓓ sap vacuole.

3 In the opposite graph, which of the following enzymes is responsible for changing the concentration of amino acids in the hepatic portal vein at point (X) ?



ⓐ Lipase. ⓑ Amylase.
ⓒ Peptidase. ⓓ Pepsin.

4 ❋ Which of the following percentages are equal ?

ⓐ The percentage of O_2 in the inhaled air with its percentage in the alveolar air.
ⓑ The percentage of CO_2 in the exhaled air with its percentage in the alveolar air.
ⓒ The percentage of N_2 in the inhaled air with its percentage in the exhaled air.
ⓓ The percentage of H_2O in the inhaled air with its percentage in the exhaled air.

5 How far are these statements "the green plant is autotrophic", "it absorbs water and glucose from the soil" correct ?

ⓐ The two statements are correct and related.
ⓑ The two statements are correct and not related.
ⓒ The first statement is correct and the second statement is wrong.
ⓓ The first statement is wrong and the second statement is correct.

6 The opposite diagrammatic figure represents the heart and the main blood vessels, which of the following blood vessels has the highest blood pressure ?

ⓐ R
ⓑ S
ⓒ P
ⓓ Q

7 Which of the following organs has a role in the breakdown of blood cells and the occurrence of blood liquidity ?

ⓐ Spleen. ⓑ Liver. ⓒ Lymphatic node. ⓓ Bone marrow.

8 Which of the following is/are **not** present in the food of aphid insect, when it is examined ?

ⓐ Amino acids. ⓑ Fatty acids. ⓒ Sucrose. ⓓ Water.

9 ✻ The opposite diagram illustrates two types of body fluids (X) and (Y) circulating inside the vessels, if you know that (Y) contains enucleated cells, what do you expect about the components of (Z) ?

ⓐ Water and soluble proteins.
ⓑ White blood corpuscles and insoluble proteins.
ⓒ Blood platelets and white blood corpuscles.
ⓓ Red blood corpuscles and blood platelets.

10 The blood that is transferred in each of pulmonary artery and inferior vena cava ....

ⓐ has the same pressure. ⓑ passes in a lumen with different width.
ⓒ has the same direction. ⓓ has a high level of oxygen.

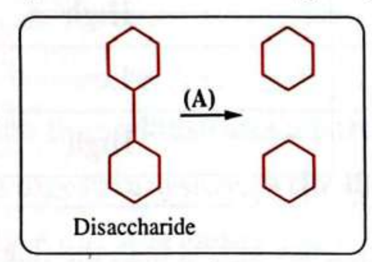
11 Which of the following vital processes **doesn't** need ATP ?

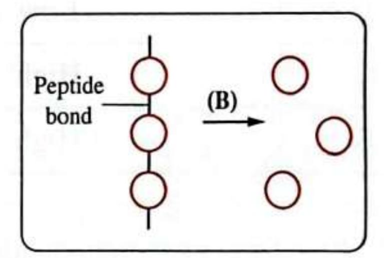
ⓐ Aerobic respiration.
ⓑ Glycolysis.
ⓒ Anaerobic respiration.
ⓓ H_2O splitting in the photosynthesis process.

12 "After eating too much salty sunflower seeds, we feel roughness in the internal side of lips". What is the reason for that ?

ⓐ The entry of salt into the lips' cells leads to their swelling.
ⓑ The exit of salt from the lips' cells leads to their shrinkage.
ⓒ The entry of water into the lips' cells leads to their swelling.
ⓓ The exit of water from the lips' cells leads to their shrinkage.

13 By your study to the two following diagrams :





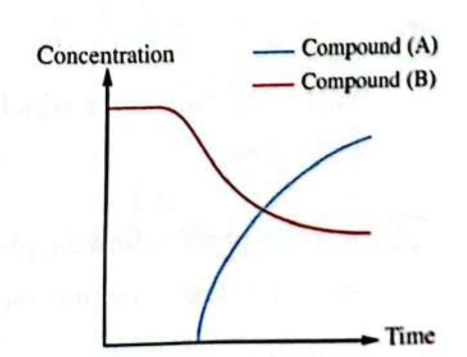
What is the suitable value of pH for the activation of enzymes (A) and (B) together ?

ⓐ 1.5
ⓑ 2.5
ⓒ 8
ⓓ 9

14 Which blood vessel contains the highest percentage of fats after completing the digestion and absorption processes ?

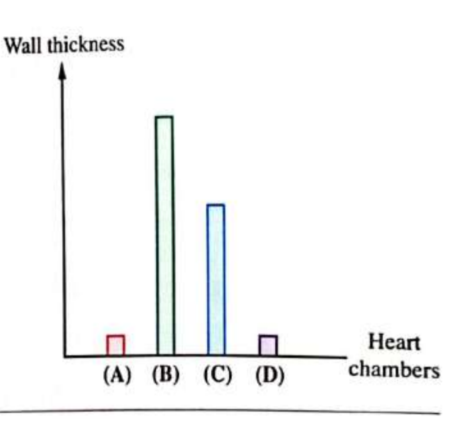
ⓐ Superior vena cava.
ⓑ Inferior vena cava.
ⓒ Hepatic portal vein.
ⓓ Hepatic vein.

15 The opposite graph represents the concentration of two types of compounds in the thigh muscles, during performing vigorous exercises, which of the following expresses (A) and (B) compounds respectively ?



ⓐ ADP / Glucose.
ⓑ Lactic acid / Glucose.
ⓒ Glycogen / ATP
ⓓ Glycogen / Lactic acid.

16 Study the opposite graph which shows the difference in the thickness of the heart chambers in human, what is the chamber that is represented by column (B) ?



ⓐ Right atrium. ⓑ Right ventricle.
ⓒ Left ventricle. ⓓ Left atrium.

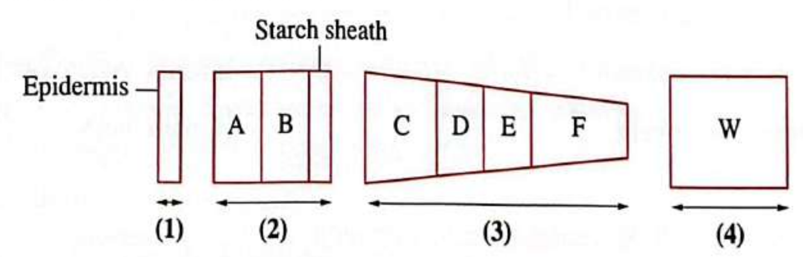
17 Which of the following choices expresses the distinguishing characteristics of the structures that are found in the phloem of a cotton plant leaf ?

	Concentration of solutes in the cell	Lignification of cell walls
ⓐ	Low	Low
ⓑ	Low	High
ⓒ	High	Low
ⓓ	High	High

18 Which of the following compounds whose deficiency affects both the rate of respiration and photosynthesis processes in *Elodea* plant ?

ⓐ ATP ⓑ FAD ⓒ NAD^+ ⓓ NADP

19 The following diagram shows 4 parts in the stem of a dicot plant arranged from outside to inside, study it, then determine :



What is the function in which the cells of tissues (D) and (F) share ?

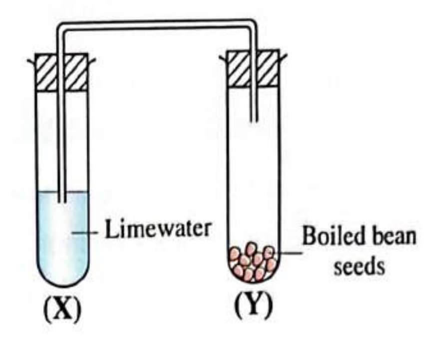
ⓐ Aeration. ⓑ Elasticity. ⓒ Sap storage. ⓓ Sap transfer.

20 In which of the following plants do you expect that the thickness of the deposited cuticle layer in its leaf epidermis increases ?

ⓐ Bean. ⓑ Corn. ⓒ *Elodea*. ⓓ Cactus.

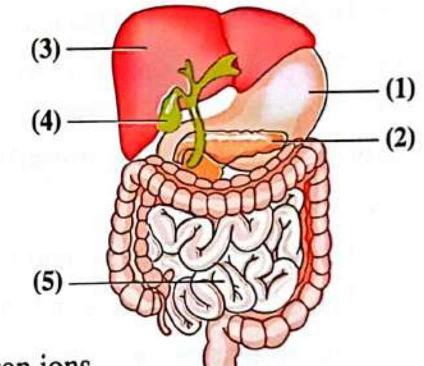
Second Answer the following questions (21 : 24) — *1 Mark for each*

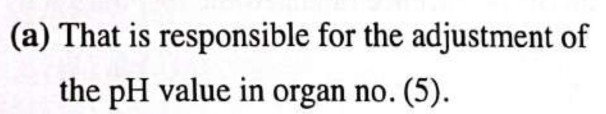
21 From the opposite figure, **deduce** what happens to the solution in tube (X).



22 **Explain :** leaves represent the production lines, while phloem tissue represents the distribution lines in plant.

23 **The opposite figure illustrates a part of the human digestive system, write the number and the name of the organ :**

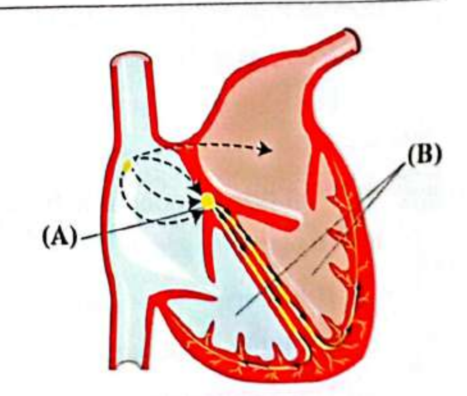




(a) That is responsible for the adjustment of the pH value in organ no. (5).

(b) That contains the highest concentration of hydrogen ions.

24 The opposite figure illustrates a longitudinal section in the human heart and the arrows represent the direct movement of the electric pulse which makes the muscle start to contract. **Illustrate** the importance of (B) contraction at its base.



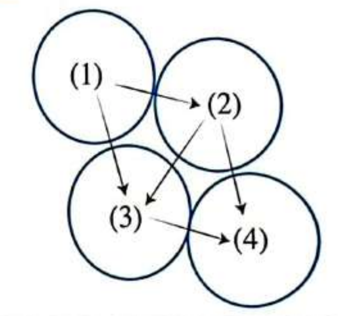


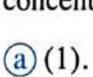
General Exam 2

First Choose the correct answer (1 : 20)

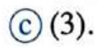
1 Mark for each

1 ✱ The opposite figure represents the movement of water transfer by osmosis phenomenon among four adjacent plant cells, which of the following cells has the highest concentration of salts before water transferring ?





ⓐ (1). ⓑ (2).



ⓒ (3). ⓓ (4).

2 If a blood sample of a person contains 45% plasma, which of the following belongs to this person ?

ⓐ This person has a deficiency in the salts percentage.
ⓑ This person drinks much water.
ⓒ This person suffers from anemia.
ⓓ This person has an increase in the number of RBCs.

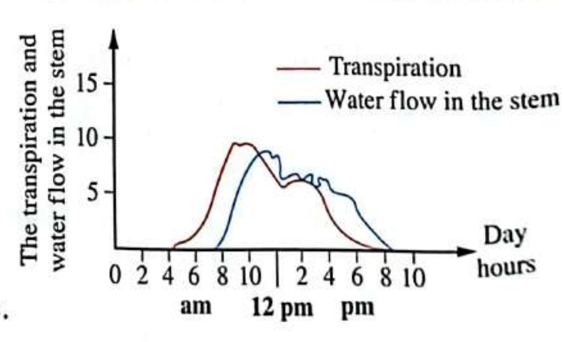
3 Which of the following **doesn't** agree with the occurrence of anaerobic respiration in the muscle ?

ⓐ The increase of lactic acid in the muscle.
ⓑ The depletion of oxygen in blood that reaches the muscle.
ⓒ The production of a large amount of NADH molecules.
ⓓ The muscle fatigue.

4 In which of the following cases the blood pressure value in human is the least ?

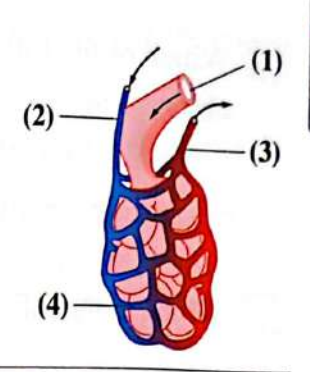
ⓐ The contraction of left ventricle. ⓑ The relaxation of right atrium.
ⓒ The closure of bicuspid valve. ⓓ The closure of semi-lunar valves.

5 ✱ What do you conclude from your study to the opposite graph ?



ⓐ The transpiration rate is constant throughout the day.
ⓑ There is no relation between the water flow in the stem and the transpiration rate.
ⓒ The highest flow of water in the stem is delayed than the highest transpiration rate.
ⓓ The transpiration rate can't reach zero.

6 From the opposite figure, which of the following structures contains a concentration of O_2 gas nearly equals to its concentration in the atmospheric air ?



ⓐ (1).
ⓑ (2).
ⓒ (3).
ⓓ (4).

7 Which of the following statements is applied to the digestive juices that are secreted by liver and pancreas ?

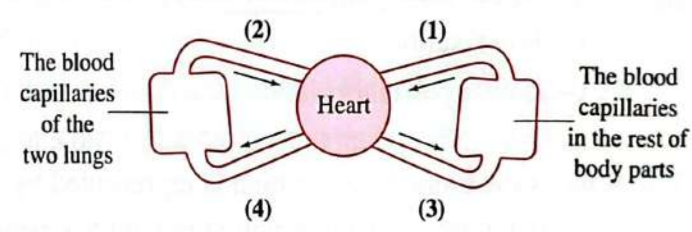
ⓐ They digest the same food substances.
ⓑ They work at the same pH value.
ⓒ Their enzymes need activators to work.
ⓓ The same products of digestion are produced by their action.

8 Which of the following is **not** found in the blood plasma ?

ⓐ Insulin hormone.
ⓑ Urea.
ⓒ Albumin.
ⓓ Oxygen.

9 * In the following figure, which of the following blood vessels carry oxygenated blood ?

ⓐ (1) & (2).
ⓑ (1) & (3).
ⓒ (2) & (3).
ⓓ (2) & (4).



10 What happens during the passage of a food bolus in the oesophagus ?

ⓐ The carbohydrates digestion continues.
ⓑ The fats digestion starts.
ⓒ The proteins digestion starts.
ⓓ The digestion process stops.

11 What should be present for the occurrence of the anaerobic cellular respiration ?

ⓐ O_2
ⓑ CO_2
ⓒ Specific enzymes.
ⓓ FAD

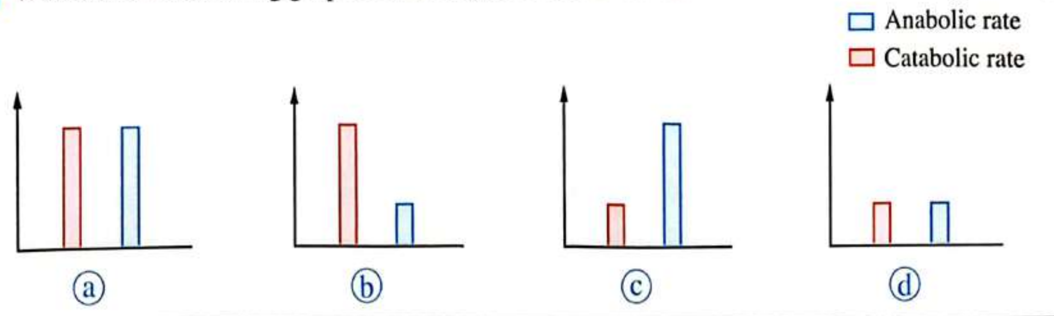
12 When will the process of water rising by the force of root pressure stop ?

ⓐ When the water comes out from the stem by exudation.
ⓑ When the water transfers to the root cells by the imbibition phenomenon.
ⓒ When the pressure increases more than 2 atmospheric pressure (atm).
ⓓ When the pressure becomes equal to that of water column in xylem vessels.

13 Which of the following may occur if suberin deposited in the double membranes of chloroplast ?

ⓐ Difficulty in the light passage.
ⓑ Chlorophyll won't be formed.
ⓒ Rapid O_2 formation.
ⓓ Water passes easily.

14 Which of the following graphs refers to the anabolic and catabolic rates in an obese person ?



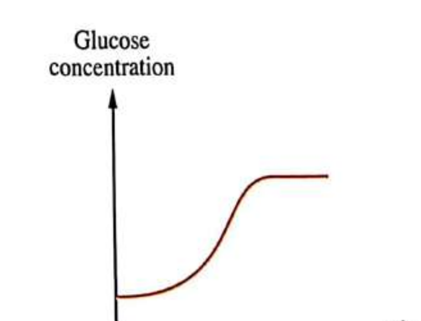
15 The living plant cells keep the internal concentration of ions which differs from the external concentration, what is the reason for continuing the difference in concentration ?

ⓐ Cell walls.
ⓑ Cell vacuoles.
ⓒ Plastids.
ⓓ Cell membranes.

16 Which of the following **doesn't** happen during dark reactions ?

ⓐ Carbon fixation.
ⓑ $NADPH_2$ oxidation.
ⓒ Oxidative phosphorylation.
ⓓ ATP consumption.

17 What is the blood vessel which is represented by the curve in the opposite graph after eating a meal rich in carbohydrates ?



ⓐ Hepatic portal vein.
ⓑ Pulmonary artery.
ⓒ Hepatic vein.
ⓓ Hepatic artery.

18 When we put the RBCs in a salt solution of unknown concentration for a period of time, the cells shrink, what do you conclude from this ?

ⓐ The concentration of salts in the solution is less than their concentration in the blood cells.
ⓑ The concentration of salts in the solution is more than their concentration in the blood cells.
ⓒ The concentration of salts in the solution is equal to their concentration in the blood cells.
ⓓ There is no relation between the salts concentration and the cells shrinkage.

19 How many heart valves through which a red blood corpuscle passes when it transfers from the right arm to the left arm ?

ⓐ 2 ⓑ 4 ⓒ 6 ⓓ 8

20 ✻ Which of the following enter(s) in the structure of ATP molecule that is made by the plant in addition to carbon, hydrogen and oxygen ?

ⓐ A macro-nutrient element and a micro-nutrient element.

ⓑ Two micro-nutrient elements.

ⓒ A macro-nutrient element.

ⓓ Two macro-nutrient elements.

Second Answer the following questions (21 : 24)

1 Mark for each

21 **Explain :** the salivary amylase enzyme is secreted in an active form, while trypsin enzyme is secreted in an inactive form.

22 **Calculate :** the number of ATP molecules which are resulted from the oxidation of 10 glucose molecules inside a seed of a dicot plant at the beginning of the germination process.

23 "The speed of the food substances transport in the plant depends on some external factors". **How far is the statement correct ? With explanation.**

24 **Explain :** we should not eat too much food that contains high percentage of fats.

General Exam 3



First — Choose the correct answer (1 : 20)

1 Mark for each

1 Which of the following elements its absence **doesn't** affect the photosynthesis process ?

ⓐ Iron. ⓑ Phosphorus. ⓒ Calcium. ⓓ Magnesium.

2 What is the similarity between the lymphatic system and the circulatory system ?

ⓐ Transporting O_2 to the cells.
ⓑ The presence of enucleated cells.
ⓒ The presence of a network of blood capillaries.
ⓓ Performing an immune function.

3 Which of the following tissues has the ability to differentiate and divide mitotically in the plant ?

ⓐ Xylem. ⓑ Phloem. ⓒ Palisade tissue. ⓓ Cambium.

4 ✻ In the opposite diagram, what do the two processes (1) and (2) represent ?

Ⓐ (12C) $\xrightarrow{(1)}$ Ⓑ $\xrightarrow{(2)}$ Ⓓ + Ⓔ + 38 ATP

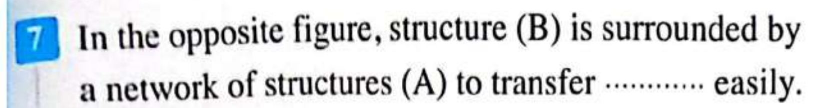
ⓐ (1) is hydrolysis and (2) is catabolism.
ⓑ (1) is anabolism and (2) is hydrolysis.
ⓒ (1) is anabolism and (2) is catabolism.
ⓓ (1) is catabolism and (2) is anabolism.

5 What is the importance of water in the photosynthesis process ?

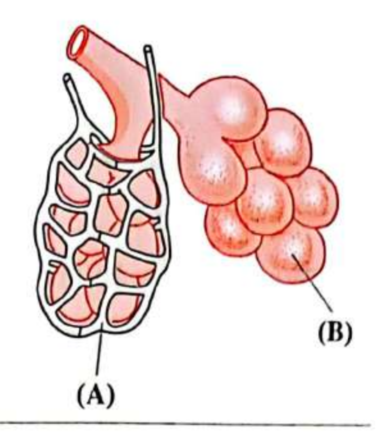
ⓐ A solvent for carbon dioxide gas.
ⓑ A source for the evolved oxygen.
ⓒ A source for hydrogen that is required for the reduction process.
ⓓ A receiver for light energy.

6 When CO_2 is consumed in photosynthesis process, which of the following illustrates the path of CO_2 diffusion in the leaf after entering through the stomata ?

ⓐ Cell wall → Plasma membrane → Intercellular spaces → Cytoplasm → Plastid membrane.
ⓑ Intercellular spaces → Cell wall → Plasma membrane → Cytoplasm → Plastid membrane.
ⓒ Intercellular spaces → Plasma membrane → Cell wall → Plastid membrane → Cytoplasm.
ⓓ Intercellular spaces → Cytoplasm → Plasma membrane → Cell wall → Plastid membrane.



7 In the opposite figure, structure (B) is surrounded by a network of structures (A) to transfer ………… easily.



ⓐ O_2 from (A) to (B)
ⓑ CO_2 from (B) to (A)
ⓒ H_2O from (B) to (A)
ⓓ O_2 from (B) to (A)

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8 * How far are these statements "the lining of small intestine contains villi and the lining of large intestine contains convolutions", "both play an important role in the absorption process" correct ?

ⓐ The two statements are correct.
ⓑ The two statements are wrong.
ⓒ The first statement is correct and the second statement is wrong.
ⓓ The first statement is wrong and the second statement is correct.

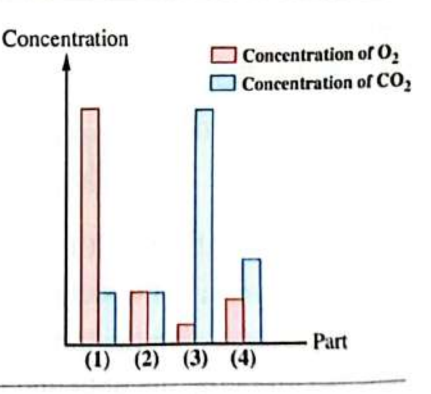
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9 * If the blood pressure value is 110/70 mm Hg, which of the following is synchronized with the measurement of number 110 ?

ⓐ The relaxation of ventricles.
ⓑ The contraction of atria.
ⓒ The opening of the valves with flaps.
ⓓ The opening of semi-lunar valves.

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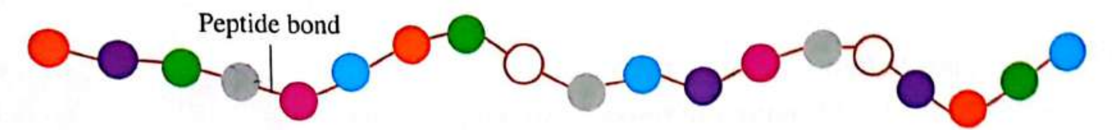
10 * The opposite graph represents the concentration of CO_2 and O_2 gases in blood in different body parts, which of the following represents the blood flow through aorta ?



ⓐ (1).
ⓑ (2).
ⓒ (3).
ⓓ (4).

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11 Study the following figure, then determine :



Which of the following end(s) the digestion process of this compound completely ?

ⓐ Amylase enzyme in duodenum.
ⓑ Pepsin enzyme in stomach.
ⓒ Trypsin enzyme in small intestine.
ⓓ Peptidases enzymes in small intestine.

12 Which of the following substances **can't** be transferred through the phloem or xylem tissues ?

ⓐ Amino acids. ⓑ Sucrose. ⓒ Starch. ⓓ H_2O

13 What is the similarity between the pulmonary artery and the limb veins ?

ⓐ The presence of oxygenated blood.
ⓑ The presence of deoxygenated blood.
ⓒ Having the same internal width.
ⓓ Having the same blood pressure value.

14 The following nutrients are found in a piece of candy, which one of them **wouldn't** need to be digested ?

ⓐ Fats. ⓑ Glucose. ⓒ Protein. ⓓ Starch.

15 Which of the following phenomena work on transferring the solutes from and to the cell of a filamentous-shaped alga ?

ⓐ Diffusion and imbibition. ⓑ Diffusion and active transport.
ⓒ Imbibition and active transport. ⓓ Diffusion and osmosis.

16 Which of the following is accompanied with the formation of glucose 6-phosphate ?

ⓐ Energy production. ⓑ Energy consumption.
ⓒ CO_2 production. ⓓ O_2 consumption.

17 * What is the result for the absence of pits from xylem vessels in a plant leaf ?

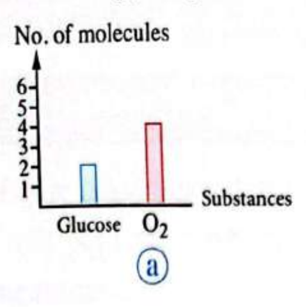
ⓐ Increasing the salts and H_2O transport to the palisade cells.
ⓑ Obstructing the transport of sucrose and amino acids.
ⓒ Stopping the light and dark reactions.
ⓓ Increasing the dark reactions rate.

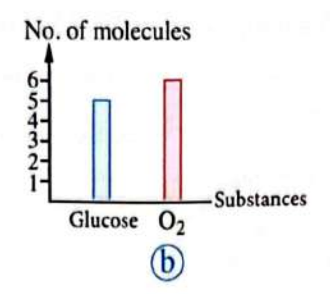
18 In the opposite figure, what do the blood vessels from (1) : (3) represent respectively ?

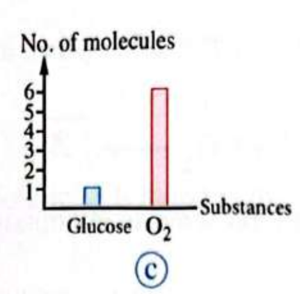
ⓐ Vein / Artery / Blood capillaries.
ⓑ Artery / Blood capillaries / Vein.
ⓒ Blood capillaries / Artery / Vein.
ⓓ Artery / Vein / Blood capillaries.

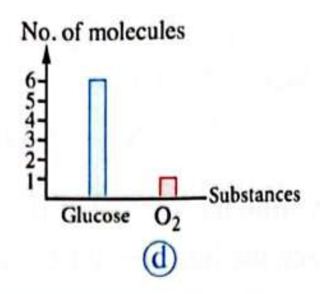
(1) (2) (3)

19 ✻ Which of the following graphs represents the human fetus need for glucose and O_2 to produce energy only ?









20 What is the reason for the decrease in the plant absorption of salts when the soil is soaked with water ?

(a) Decreasing salts in the soil.

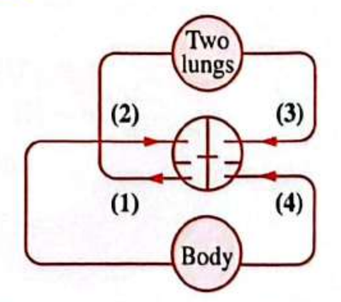
(b) Lack of O_2 in the soil.

(c) Increasing O_2 in the soil.

(d) Increasing the production of ATP in the root cells.

Second Answer the following questions (21 : 24) *1 Mark for each*

21 The opposite diagram represents the blood circulation in human, which contains an arrow with a wrong direction. **Determine** its number and name.

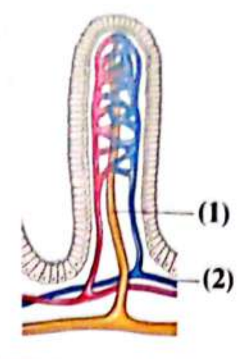


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22 **Compare between :** the oxidation process for a piece of sugar in air and its oxidation inside a cell of a living organism's body.

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23 From the opposite figure, **what** is the first blood vessel that the absorbed food substances may be gathered in it through the two vessels no. (1) and (2) ?



24 **The following equation represents a vital process that takes place in the plant leaves, study it, then answer :**

$$\boxed{X} + NADP \longrightarrow \boxed{Y} + CO_2 \longrightarrow \boxed{Z}$$

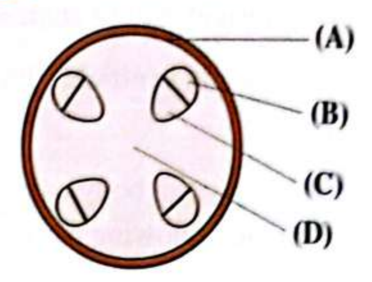
(a) Determine the symbol of the substance that represents an intermediate compound between the light and dark reactions.

(b) Where is the substance (X) formed ?

General Exam 4

First Choose the correct answer (1 : 20) *1 Mark for each*

1 The opposite figure illustrates a diagrammatic section in the stem of a dicot plant, in which of the following tissues does sugar transfer ?



ⓐ (A). ⓑ (B).
ⓒ (C). ⓓ (D).

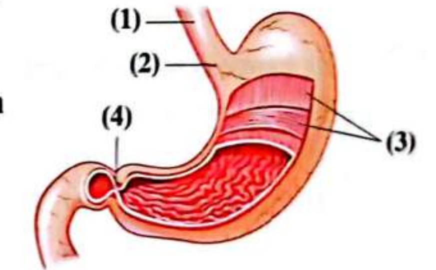
2 Which of the following is found in the blood that is carried by the pulmonary artery branches inside the lung ?

ⓐ High percentage of wastes.
ⓑ A higher percentage of O_2 and a lower percentage of CO_2
ⓒ A higher percentage of CO_2 and a lower percentage of O_2
ⓓ An equal percentage of CO_2 and O_2

3 What is the difference between the photosynthesis mechanism in each of green plants and the purple sulphur bacteria ?

ⓐ The source of carbon required for glucose formation.
ⓑ The source of hydrogen required to reduce CO_2 in each one of them.
ⓒ The source of oxygen that enters in the structure of the produced water.
ⓓ The source of oxygen that enters in the structure of the produced glucose.

4 Some patients who have digestion complications suffer from the "Gastro-oesophageal reflux" which causes severe inflammation in the oesophagus, in which part in the opposite figure is the disturbance occurred to cause this ?



ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

5 Which of the following valves determine the blood route which contains the highest percentage of oxyhaemoglobin substance ?

ⓐ Mitral valve and tricuspid valve. ⓑ Mitral valve and aortic valve.
ⓒ Pulmonary valve and aortic valve. ⓓ Bicuspid valve and pulmonary valve.

6 Which of the following substances **doesn't** transfer through the plant transport system ?

ⓐ H_2O ⓑ Glucose. ⓒ Cellulose. ⓓ Mg^{2+}

7 Which of the following gives the highest blood pressure in aorta ?

ⓐ Right atrium contraction. ⓑ Left atrium contraction.

ⓒ Right ventricle contraction. ⓓ Left ventricle contraction.

8 The human body contains a group of fluids that differ in their structure, which choice in the following table expresses the components of the blood plasma ?

	Water	Urea	Antibodies
ⓐ	✓	×	✓
ⓑ	✓	✓	×
ⓒ	✓	✓	✓
ⓓ	×	×	✓

✓	Present
×	Absent

9 In the light of your study, what is the similarity between the corn plant and *Orobanche* plant ?

ⓐ Performing photosynthesis process.

ⓑ The fixation of CO_2 gas.

ⓒ Converting low-energy compounds into high-energy compounds.

ⓓ Converting organic compounds into inorganic compounds.

10 In which of the following plants do you expect that the root pressure is vanished ?

ⓐ Cotton. ⓑ Bean. ⓒ Maize. ⓓ *Pinus*.

11 What happens to the ketoglutaric acid when it is converted into succinic acid during cellular respiration ?

ⓐ It combines with O_2 ⓑ It consumes ATP molecules.

ⓒ It consumes CO_2 ⓓ It loses electrons.

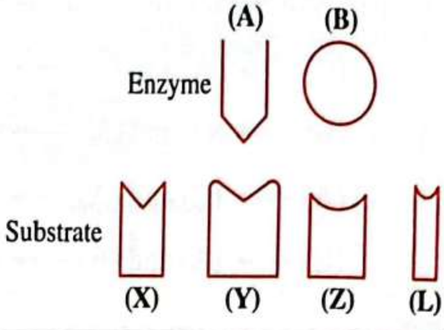
12 Which of the following **doesn't** agree with glycolysis reactions and the reactions which occur in the chloroplast stroma ?

ⓐ Each of them doesn't occur in one step.

ⓑ PGAL compound is formed in both of them.

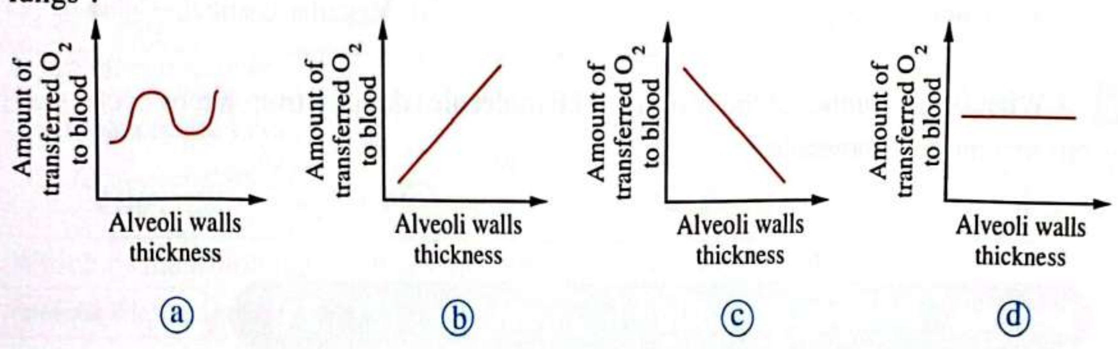
ⓒ Both of them need energy. ⓓ Each of them produces CO_2

13 Which of the following represent the reactants (substrates) for enzymes (A) & (B) respectively ?



ⓐ (Y) & (L).
ⓑ (Z) & (L).
ⓒ (Y) & (X).
ⓓ (X) & (Z).

14 Which of the following graphs expresses the efficiency of air sacs (alveoli) in the two lungs ?



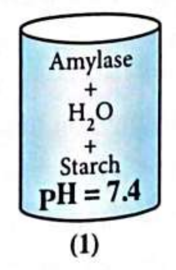
15 Which of the following occurs when placing a plant cell in a salt solution whose temperature is 90°C ?

ⓐ Water transfers to it by osmosis.
ⓑ Water comes out from it by osmosis.
ⓒ Salts transfer to it by diffusion.
ⓓ Salts come out from it by active transport.

16 What is the result of the presence of a layer of cambium in the stem structure of a dicot plant ?

ⓐ An increase in the transport rate.
ⓑ The widening of the secondary xylem cavities.
ⓒ A decrease in the stem support.
ⓓ An increase in the length of phloem tubes.

17 In the opposite figures, in which tube(s) does the complete digestion occur when it(they) is(are) placed in a water bath (37°C) ?



(1)



(2)



(3)

ⓐ (1) & (3).
ⓑ (3) only.
ⓒ (1) & (2).
ⓓ (2) only.

18 The opposite figure shows the connection between two veins together, which of the following shows the direction of venous blood ?

ⓐ (C) ⟶ (A) and (A) ⟶ (B).

ⓑ (B) ⟶ (C) and (A) ⟶ (C).

ⓒ (A) ⟶ (C) and (A) ⟶ (B).

ⓓ (C) ⟶ (A) and (B) ⟶ (A).

19 Which of the following tissues is mainly responsible for aeration in the plant leaves ?

ⓐ Palisade tissue.
ⓑ Spongy tissue.
ⓒ Collenchyma tissue.
ⓓ Vascular tissue.

20 ✻ What is the number of the resulted ATP molecules directly from Krebs cycle, starting from a maltose molecule ?

ⓐ 1
ⓑ 2
ⓒ 4
ⓓ 8

Second Answer the following questions (21 : 24)

1 Mark for each

21 **Explain :** lymph plays an indirect role in blood clotting.

22 The opposite graph illustrates the activity of two enzymes that affect the same food substance, **deduce** the name of the two enzymes (1) and (2).

23 **What happens if :** the respiration of the root tissues stops ?

24 "The role of enzymes is limited on the digestion of food substances only".

How far is the statement correct ? With explanation.

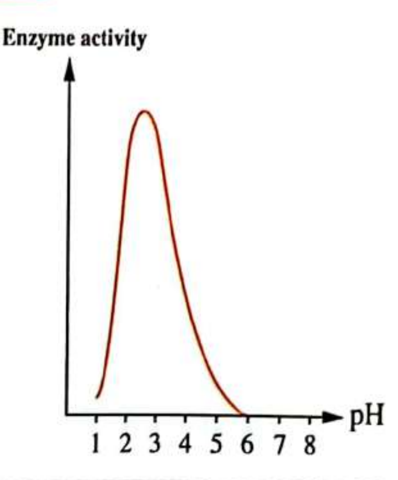


General Exam 5

First — Choose the correct answer (1 : 20)

1 Mark for each

1 The opposite graph shows the effect of pH on the rate of a digestive enzyme activity, where is the enzyme found ?



ⓐ In bile juice.

ⓑ In gastric juice.

ⓒ In intestinal juice.

ⓓ In pancreatic juice.

---

2 Which of the following produces the lowest number of ATP molecules ?

ⓐ $FADH_2$ molecule in the electron transport chain.

ⓑ The acidic fermentation.

ⓒ The alcoholic fermentation. ⓓ One Krebs cycle.

---

3 Which of the following juices whose action is similar to the action of teeth ?

ⓐ Bile juice. ⓑ Pancreatic juice.

ⓒ Gastric juice. ⓓ Intestinal juice.

---

4 * A blood sample was taken from a blood vessel in the patient's body, on examining its external appearance, it was found that its colour is light red. What is the expected place for this sample to be taken from ?

ⓐ A blood vessel near to the skin surface.

ⓑ A blood vessel buried among the muscles.

ⓒ Any blood vessel. ⓓ A lymphatic vessel.

---

5 Which of the following statements **doesn't** explain the transport process of water in the plant ?

ⓐ Most of the released water from the leaf gets out through the stomata.

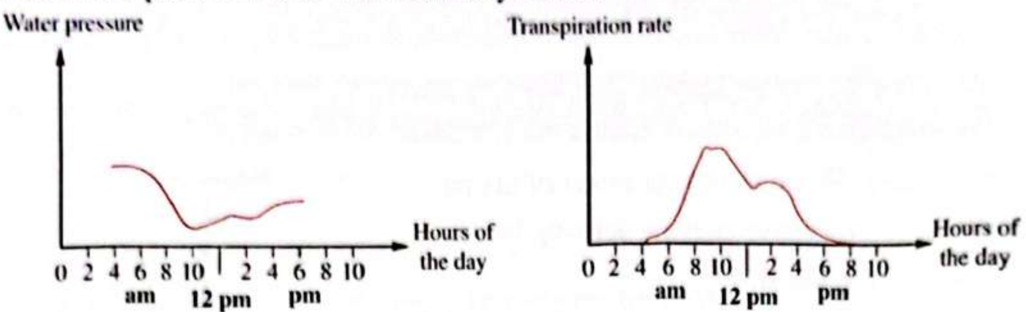
ⓑ The cohesion among the molecules of water causes the presence of a continuous column of water.

ⓒ The resulted effect from the transpiration process causes the presence of the continuous attraction of water column.

ⓓ The adhesion force between the molecules of water and xylem vessels causes the column of water to be held continuously.

---

6 The two following graphs illustrate the rate of transpiration process and the water pressure in the plant leaf cells within the day hours :



What do you conclude from your study to the two previous graphs ?

ⓐ The water pressure decreases inside the leaf cells with increasing the transpiration process.

ⓑ The water pressure increases inside the leaf cells with increasing the transpiration rate.

ⓒ The stomata of the leaf close at 10 am.

ⓓ The stomata of the leaf open at 4 am.

7 What is the process that occurred in the chloroplast and is opposite to the process of photosynthetic phosphorylation ?

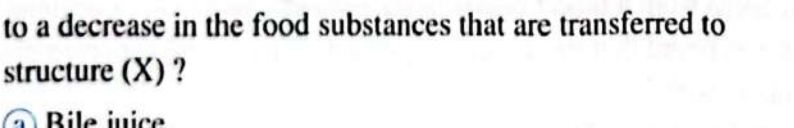
ⓐ The production of ATP from ADP in the grana.

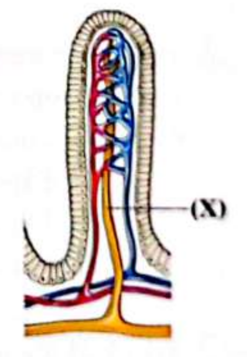
ⓑ The production of ADP from ATP in the grana.

ⓒ The production of ATP from ADP in the stroma.

ⓓ The production of ADP from ATP in the stroma.

8 Which of the following the decrease in its production rate leads to a decrease in the food substances that are transferred to structure (X) ?





ⓐ Bile juice.

ⓑ Pepsin.

ⓒ Amylase.

ⓓ Sucrase.

9 In each of the alcoholic fermentation and the acidic fermentation, 2 molecules of ATP are released. So, the expected number of the resulted kilocalories from the hydrolysis of the released ATP molecules ....

ⓐ from the alcoholic fermentation is greater than that from the acidic fermentation.

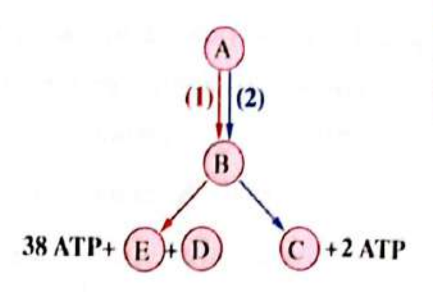
ⓑ from the alcoholic fermentation is lower than that from the acidic fermentation.

ⓒ from the two types of fermentation is equal.

ⓓ from each of them is greater than that from the aerobic respiration.



10 In the opposite diagram, what is the common factor between the two processes in (1) and (2) pathways ?



ⓐ The need for O_2

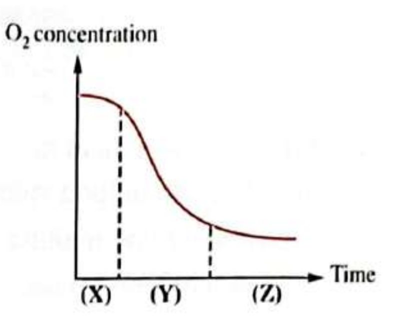
ⓑ The need for CO_2

ⓒ The need for energy.

ⓓ The need for FAD presence.

---

11 ✻ What are the blood vessels (X) and (Z) that are expressed in the opposite graph respectively ?



ⓐ Pulmonary artery / Pulmonary vein.

ⓑ Renal artery / Renal vein.

ⓒ Vena cava / Pulmonary artery.

ⓓ Hepatic vein / Hepatic artery.

---

12 During preparation of a T.S. of a new dicot plant stem, iodine was added to the sample to be more clear, which tissue do you expect that its cells **won't** be stained with the dark blue colour ?

ⓐ Cambium. ⓑ Cortex. ⓒ Medullary rays. ⓓ Pith.

---

13 ✻ Which of the following represents the mechanism of absorbing the products of starch digestion ?

ⓐ Diffusion to the arterioles (arterial capillaries).

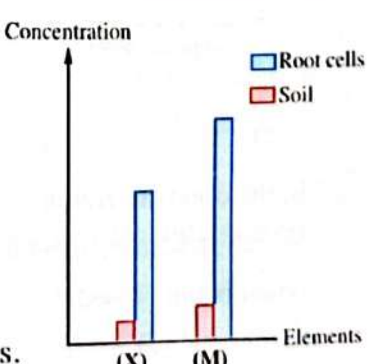
ⓑ Active transport to the lacteal vessel.

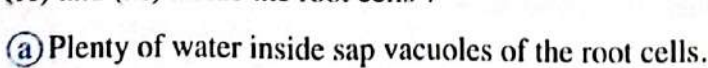
ⓒ Diffusion to the lacteal vessel.

ⓓ Active transport to the venules (venous capillaries).

---

14 Study the opposite graph which shows the plant need for (X) and (M) elements to perform vital processes, what is the factor that helps in increasing the concentration of (X) and (M) inside the root cells ?





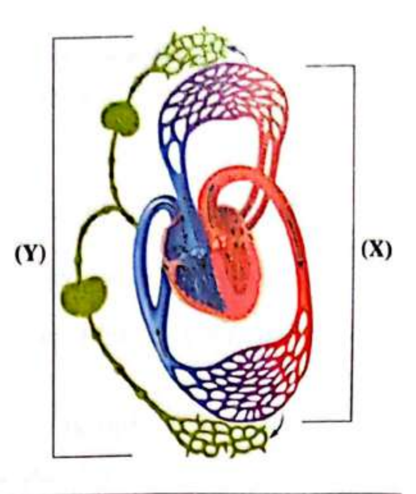
ⓐ Plenty of water inside sap vacuoles of the root cells.

ⓑ The decrease of sugar inside sap vacuoles of the root cells.

ⓒ The decrease of O_2 inside the root cells.

ⓓ Plenty of O_2 inside the root cells.

15 Transport process in human body occurs by two systems connected tightly together that are illustrated in the opposite figure, what do you deduce from this figure ?



ⓐ Systems (X) and (Y) are closed.

ⓑ Systems (X) and (Y) are opened.

ⓒ System (X) is closed and system (Y) is opened.

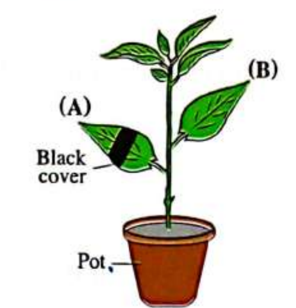
ⓓ System (X) is opened and system (Y) is closed.

16 When eating a meal that contains bread, rice and potatoes, what are the enzymes that will digest the three food substances ?

ⓐ Amylase and maltase. ⓑ Lipase and maltase.

ⓒ Amylase and lipase. ⓓ Lipase and peptidase.

17 In the opposite figure :



Leaf (B) produces $C_6H_{12}O_6$ .... leaf (A).

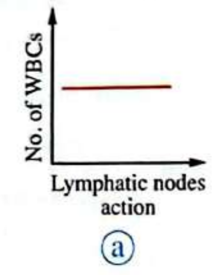
ⓐ more than

ⓑ less than

ⓒ equal to

ⓓ twice

18 Which of the following graphs represents the immunity performance for a person body in the first days of a bacterial infection ?

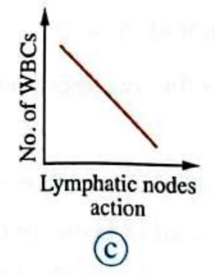


ⓐ

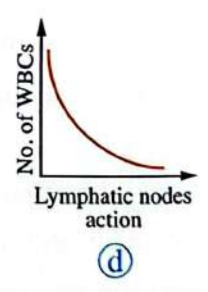
No. of WBCs

Lymphatic nodes action

ⓑ

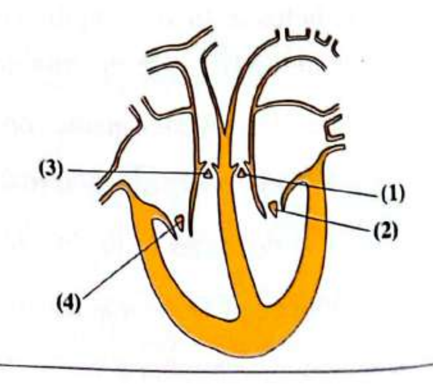


ⓒ



ⓓ

19 In the opposite figure :



Which structures have the highest blood pressure when being closed ?

ⓐ (1) and (2).

ⓑ (3) and (4).

ⓒ (1) and (3).

ⓓ (2) and (4).

20. Which of the following are permeable to water ?

(a) Cellulose walls only.

(b) Walls covered by lignin only.

(c) Walls covered by cutin and suberin.

(d) Plasma membranes and cellulose walls.

Second Answer the following questions (21 : 24) *1 Mark for each*

21. The opposite figure illustrates the experiment of Calvin, **what do you expect to happen if** the system is supplied with element (X) intermittently ?

(X)
Light source

22. The doctor may recommend a medicine for the patient, that is taken through venous injection not by mouth. **Suggest two reasons for that.**

23. "The aerobic respiration may occur after the anaerobic respiration". **How far is the statement correct ? With explanation.**

24. **Explain :** the entrance of oxygen or air into the stem of a herbaceous plant differs from that of woody stem.

Exam 6

Cairo Governorate
"Al-Nozha Administration"



First Choose the correct answer (1 : 20) *1 Mark for each*

1 Which of the following distinguishes the root hair from the rest of the plant cells ?

ⓐ Increased surface area. ⓑ Presence of a sap vacuole.
ⓒ Presence of protoplasm. ⓓ Presence of a plasma membrane.

2 How many ATP molecules are resulted from the direct oxidation of three glucose molecules during the Krebs cycle, complete oxidation inside the mitochondria ?

ⓐ 6 ⓑ 36 ⓒ 72 ⓓ 76

3 Which blood vessel has the highest blood pressure ?

ⓐ Aorta. ⓑ Superior vena cava.
ⓒ Inferior vena cava. ⓓ Hepatic artery.

4 The epithelial layer of the small intestine absorbs .... through engulfment ?

ⓐ protein ⓑ starch ⓒ fat droplets ⓓ vitamins

5 Which tissues have the ability to divide ?

ⓐ Xylem vessels. ⓑ Companion cells. ⓒ Tracheids. ⓓ Sieve tubes.

6 Which juice contains digestive enzymes for all types of food ?

ⓐ Hepatic juice. ⓑ Pancreatic juice. ⓒ Gastric juice. ⓓ Intestinal juice.

7 If the absorbed food becomes a part of the body, this is called .... process.

ⓐ digestion ⓑ synthesis ⓒ absorption ⓓ anabolism

8 Magnesium is found in the plant leaves and is abundant in ....

ⓐ the upper epidermis. ⓑ the palisade layer.
ⓒ the lower epidermis. ⓓ the spongy layer.

9 Which of the following **is not** consistent with the formation of the products in the dark reactions ?

ⓐ O_2 ⓑ ADP ⓒ NADP ⓓ Glucose.

10 What is the name of the organism that Van Niel used in his experiment ?

ⓐ *Spirogyra* alga. ⓑ *Chlorella* alga.
ⓒ Aphid insect. ⓓ Purple sulfur bacteria.

11 Which of the following is from the trace elements that plants need ?

ⓐ Nitrogen. ⓑ Potassium. ⓒ Iron. ⓓ Copper.

12 Fatty acids participate in cellular respiration in the form of .... molecules ?

ⓐ one-carbon ⓑ two-carbon ⓒ three-carbon ⓓ four-carbon

13 What is the phenomenon of gas exchange between the air in the alveoli and the blood in the lungs ?

ⓐ Osmosis. ⓑ Diffusion. ⓒ Active transport. ⓓ Imbibition.

14 Which substance can be digested in both acidic and basic media ?

ⓐ Beans. ⓑ Rice. ⓒ Potatoes. ⓓ Fat.

15 What is the ratio of $FADH_2$ molecules to NADH molecules resulting from complete oxidation of a glucose molecule under aerobic conditions ?

ⓐ 1 : 5 ⓑ 3 : 1 ⓒ 5 : 2 ⓓ 4 : 3

16 The non-lignified parts of xylem vessels are called ....

ⓐ bronchioles. ⓑ pits.

ⓒ sclerenchyma cells. ⓓ lenticels.

17 Which of the following caused by Vagus nerve ?

ⓐ Increasing the heart rate. ⓑ Increasing the respiratory rate.

ⓒ Decreasing the salivary secretion. ⓓ Decreasing the heart rate.

18 A person loses about .... cm^3 of water daily through the lungs.

ⓐ 2500 ⓑ 750 ⓒ 500 ⓓ 1300

19 Which of the following substances **cannot** be transported by plasma ?

ⓐ Glucose. ⓑ Urea.

ⓒ CO_2 ⓓ All of the above.

20 How many valves does a red blood cell pass through, when it circulates from the right arm to the left arm ?

ⓐ 4 ⓑ 6 ⓒ 8 ⓓ 2

Second Answer the following questions (21 : 24)

1 Mark for each

21 The human circulatory system is considered a closed type. **Explain that.**

22 **What happens :** when the temperature in the sieve tubes decreases ?

23 **Explain :** why the wooden stem contains lenticels.

24 **What** is the importance of continuing the photosynthesis process for only 2 seconds ?

Exam 7

Giza Governorate
"North Administration"



First Choose the correct answer (1 : 20) *1 Mark for each*

1 Which of the following photosynthesis reactions take(s) place at night ?

ⓐ Dark reactions.
ⓑ Carbon dioxide fixation.
ⓒ All of them.
ⓓ None of them.

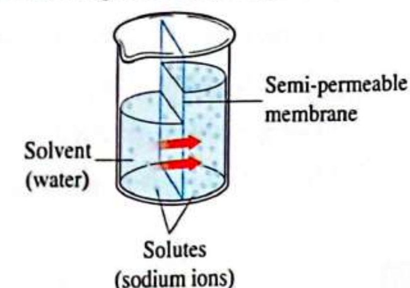
2 The "larynx" belongs to the .... system(s).

ⓐ digestive
ⓑ respiratory
ⓒ respiratory and vocal (voice)
ⓓ respiratory and digestive

3 Which of the following modes of nutrition obtain(s) energy from organic food molecules ?

ⓐ Autotrophic only.
ⓑ Heterotrophic only.
ⓒ Autotrophic and heterotrophic.
ⓓ Parasitic and saprophytic only.

4 The arrows in the following figure indicate the occurrence of the phenomenon/phenomena of ....



ⓐ active transport.
ⓑ diffusion.
ⓒ osmosis.
ⓓ osmosis and active transport.

5 Which of the following **is not** a function of the leaf epidermis ?

ⓐ Gas exchange.
ⓑ Photosynthesis.
ⓒ Preventing the entry of pests.
ⓓ Light passing and convergence.

6 The opposite table shows two types of cells in an animal tissue. Which of the following is correct about these cells ?

Cell (A)	Cell (B)
Has a nucleus	Has no nucleus
Has no pigments	Has a pigment
Has no fixed shape	Has a fixed shape

ⓐ They have equal life spans.
ⓑ Both are living cells.
ⓒ Both transport substances inside the animal's body.
ⓓ Both are destroyed in the bone marrow.

7 Which of the following is correct about the transport of the sap through xylem ?

ⓐ The sap is transported only through the cavity of xylem vessels.
ⓑ Cohesion and adhesion are the only forces that transport the sap through xylem.
ⓒ The main force that pulls-up the sap through xylem is originated in the leaf.
ⓓ The sap ascent through xylem is affected by deficiency of oxygen in xylem vessels.

8 How many valves will the blood pass through from the beginning till the end of the systematic circulation ?

ⓐ One. ⓑ Two. ⓒ Four. ⓓ Large number.

9 Which of the following is correct about the superior vena cava ?

ⓐ It receives blood and lymph from the upper parts of the body.
ⓑ It receives lymph and blood from the whole body.
ⓒ It receives lymph from the whole body and blood from the upper parts of the body.
ⓓ It receives lymph from the upper parts of the body and blood from the whole body.

10 Which sound of the heart can be heard by the stethoscope during the heart action shown in the opposite figure ?

ⓐ Long and high-pitched sound.
ⓑ Short and low-pitched sound.
ⓒ Long and low-pitched sound.
ⓓ Short and high-pitched sound.

11 All of the following are blood plasma proteins **except** ....

ⓐ haemoglobin. ⓑ globulin. ⓒ fibrinogen. ⓓ albumin.

12 What is main result of the reduction of pyruvic acid into lactic acid in the muscle cells ?

ⓐ Producing more energy.
ⓑ Producing less toxic waste products.
ⓒ Supplying the muscle cell with NAD^+
ⓓ Reducing NAD^+ into $NADH + H^+$

13 The heartbeats are spontaneous, because they ....

ⓐ are regulated by two nerves.
ⓑ are originated from the sino-atrial node.
ⓒ are regulated by the sino-atrial node.
ⓓ are originated from the sino-atrial and Hiss fibers.

14 Which of the following is correct about PGAL ?

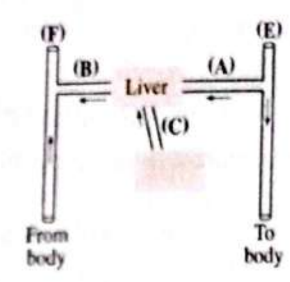
(a) It is formed in the matrix of mitochondria.

(b) It is formed in the matrix of chloroplast.

(c) It is formed in the matrix of both chloroplast and mitochondria.

(d) It is formed in the matrix of chloroplast and cytosol of the cell.

15 In the opposite diagram, which blood vessel is denoted by letter (E) ?



(a) Aorta.

(b) Inferior vena cava.

(c) Hepatic artery.

(d) Mesentery artery.

16 How many digestive juices play(s) the main role in the digestion of disaccharides ?

(a) Four. (b) Three. (c) Two. (d) One.

17 Which of the following is correct about plant respiration ?

(a) Plants respire CO_2 and release O_2

(b) Plants respire only at night.

(c) Aerobic respiration in plants has the same stages of animal aerobic respiration.

(d) Anaerobic respiration in plants has the same products of anaerobic respiration in animals.

18 Which of the following is **not** a function of the lymphatic system ?

(a) Carrying the filtered lymph back to the blood.

(b) Trapping and attacking pathogens.

(c) Transporting the products of fats digestion to the heart.

(d) Transporting the products of proteins digestion to the heart.

19 Which phloem cells will translocate organic food substances ?

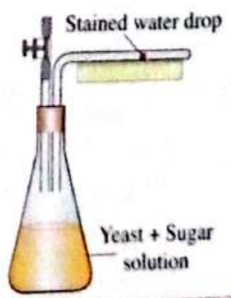
(a) Sieve tubes only.

(b) Sieve tubes and companion cells.

(c) Sieve tubes and phloem parenchyma.

(d) Phloem parenchyma, sieve tubes and companion cells.

20 What will happen to the stained water drop during the experiment shown in the opposite figure ?



(a) Moves to the right.

(b) Moves to the left.

(c) Moves first to the right, then to the left.

(d) Stays in its position.

Second Answer the following questions (21 : 24) 1 Mark for each

21 **Which** root cells will respire aerobically to absorb salts against their concentration gradients ?

---

22 **Which** raw materials of photosynthesis will be involved in light reactions and which raw materials will be involved in dark reactions ?

---

23 **What** is the difference between the capillary network in the villus and in the liver (between portal vein and hepatic vein) in terms of the type of these capillaries ?

---

24 **Mention** four common structures between mitochondria and chloroplasts ?

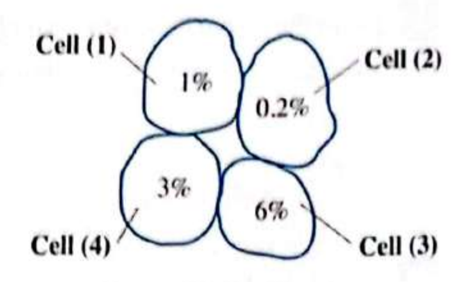
Exam 8

Alexandria Governorate
"Borg Al-Arab Administration"



First Choose the correct answer (1 : 20) *1 Mark for each*

1 The opposite figure represents 4 adjacent cells that have different concentration of sugar, the water moves by ....



(a) active transport from cell (1) to cell (2).
(b) osmosis from cell (3) to cell (2).
(c) osmosis from cell (4) to cell (3).
(d) active transport from cell (2) to cell (3).

2 The green plants **cannot** survive in depth of oceans, because ....

(a) there is no suitable soil to fix the plant roots.
(b) the concentration of O_2 is very high.
(c) the light intensity is very low.
(d) the concentration of CO_2 is very low.

3 The main compound that is resulted from the reduction of pyruvic acid during cellular respiration in yeast fungus in the absence of O_2 has .... carbon atom(s).

(a) (1) (b) (2) (c) (3) (d) (4)

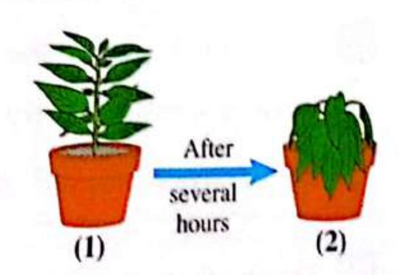
4 All of the following enzymes digest the same type of carbohydrates **except** ....

(a) amylase. (b) maltase. (c) sucrase. (d) lactase.

5 All of the following components of the lymph fluid can't share in the formation of blood clot **except** ....

(a) Ca^{2+} (b) Na^{+} (c) vitamin (A). (d) vitamin (D).

6 In the opposite figure what is the reason of converting the plant to state (2) ?



(a) Watering plant with distilled water.
(b) Watering plant with a low-concentrated sugar solution.
(c) Watering plant with a highly-concentrated salt solution.
(d) Watering plant with a low-concentrated salt solution.

7 Which of the following groups represents the blood vessels carrying deoxygenated blood ?

ⓐ Aorta - pulmonary artery - hepatic artery.
ⓑ Aorta - pulmonary vein - hepatic artery.
ⓒ Vena cava - pulmonary artery - hepatic vein.
ⓓ Vena cava - pulmonary vein - hepatic vein.

8 From the opposite figure, which of the following structures contains the highest amount of O_2 gas ?

ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

(3)
(2)
(4)
(1)

9 All of the following may cause the presence of high percentage of fats absorbed from the digestive system **except** a disturbance in the ....

ⓐ secretion of gallbladder. ⓑ action of lipase enzyme.
ⓒ secretion of pancreatic juice. ⓓ secretion of hydrochloric acid.

10 All of the following substances reaches the heart through the superior vena cava after its digestion and absorption from the small intestine **except** ....

ⓐ peanut butter. ⓑ oil. ⓒ vitamin (K). ⓓ rice.

11 In which part of human alimentary canal does the enzyme work efficiently, if its optimal pH = 8 ?

ⓐ Small intestine. ⓑ Mouth. ⓒ Stomach. ⓓ Oesophagus.

12 The vital process illustrated in the opposite figure of the plant is ....

ⓐ respiration. ⓑ transpiration.
ⓒ photosynthesis. ⓓ transportation.

O_2
H_2O
CO_2

13 In a diabetic patient, the level of glucose which is linked with hemoglobin (HbA1c) must be measured every ....

ⓐ 10 days. ⓑ 20 days. ⓒ 120 days. ⓓ Year.

14 During the glycolysis of 6 molecules of glucose, ... ATP molecules are formed.

ⓐ 4 ⓑ 12 ⓒ 8 ⓓ 16

15 Which of the following is considered from the characteristics of blood vessels that connect between the artery and vein ?

ⓐ They contain valves.

ⓑ Their walls consist of many layers.

ⓒ Their walls consist of connective tissue.

ⓓ Their walls contain tiny pores.

16 The nicotine substance reaches the heart of a smoker through ....

ⓐ pulmonary vein in left atrium.

ⓑ pulmonary vein in right atrium.

ⓒ pulmonary artery in left ventricle.

ⓓ superior vena cava in left atrium.

17 The amount of amino acids increases when the blood comes out from the .... organ.

ⓐ liver ⓑ kidney ⓒ small intestine ⓓ brain

18 What is the coenzyme that receives hydrogen in mitochondria only ?

ⓐ NAD^+ ⓑ FAD ⓒ CoA ⓓ Cytochrome.

19 The number of PGAL molecules that are needed to form two glucose molecules is ....

ⓐ (2). ⓑ (4). ⓒ (10). ⓓ (8).

20 Which of the following blood vessels contains the lowest amount of O_2 and the highest amount of CO_2 ?

ⓐ Aorta.

ⓑ Pulmonary vein.

ⓒ Renal artery.

ⓓ Pulmonary artery.

Second Answer the following questions (21 & 22) *(2 Marks for each)*

21 **Explain :** the stem of celery plant is able to perform photosynthesis process ?

....

....

22 "The absence of lymphatic nodes causes negative effect on the human". **Explain.**

....

....

Exam 9

Minia Governorate
"Matay Administration"





First **Choose the correct answer (1 : 20)** *1 Mark for each*

1 From your understanding to the mechanism of enzyme action, which of the following represents the product of an enzymatic reaction and has a specific activation at the same time ?

ⓐ Pepsin. ⓑ Trypsin.
ⓒ Enterokinase. ⓓ Maltase.

2 Skin pimples are treated by placing highly concentrated treatments. Based on which of the following ?

ⓐ Imbibition. ⓑ Diffusion. ⓒ Osmosis. ⓓ Permeability.

3 Which of the following have mechanical function in digestion of food ?

ⓐ Saliva and bile juice. ⓑ Teeth and bile juice.
ⓒ Saliva and enterokinase. ⓓ Teeth and enterokinase.

4 When there is a decrease in the number of mitochondria in *Nitella* alga, this leads to ....

ⓐ a complete failure of the absorption process. ⓑ increasing respiratory rate.
ⓒ decreasing the chlorophyll action. ⓓ increasing the photosynthesis process.

5 In Melvin Calvin's experiment, *Chlorella* alga was put for 2 seconds in hot alcohol to ....

ⓐ stop light reactions only.
ⓑ stop dark reactions only.
ⓒ destroy chlorophyll with alcohol.
ⓓ stop the action of enzymes and remove the green substance.

6 Which of the following parts of the digestive system has a positive effect on blood volume ?

ⓐ Stomach. ⓑ Pancreas. ⓒ Liver. ⓓ Large intestine.

7 A non-digestive substance, without it the digestion does **not** occur in the intestine, it is ....

ⓐ enterokinase. ⓑ sodium bicarbonate. ⓒ bile juice. ⓓ lipase.

8 A food substance that is digested and rebuilt in the same organ of the digestive system is ....

ⓐ starch. ⓑ protein. ⓒ fat. ⓓ polypeptide.

9 When the activity of the sino-atrial node increases, the heartbeats rate per minute is ....

ⓐ 60 ⓑ 70 ⓒ 120 ⓓ 50

10 If the nucleus does **not** disappear from the red blood cells, this leads to ....

(a) being their age less than 4 months. (b) increasing oxygen in blood.
(c) decreasing oxygen in blood. (d) decreasing carbon dioxide in blood.

11 Which of the following cells are found in the stem section and **not** in the leaf section ?

(a) Paranchyma. (b) Collenchyma. (c) Epidermal. (d) Meristematic.

12 An organ is connected by two major arteries and six major veins is the ....

(a) liver. (b) spleen. (c) heart. (d) lung.

13 Which of the following represent a component of blood and have an immune role ?

(a) Red blood cells. (b) Platelets.
(c) White blood cells. (d) (b) and (c) together.

14 The importance of cytoplasm and sieve plates in phloem is ....

(a) increasing the rate of transport of organic substances.
(b) stopping the transport of organic substances.
(c) reducing the effect of Earth's gravity on transmission rate.
(d) none of the above.

15 When iodine is added to a stem section of dicotyledonous plant, which of the following is sure to produce positive result ?

(a) Epidermis. (b) Cortex. (c) Vascular cylinder. (d) Pericycle.

16 Transferring the heart from a died person is a successful surgery, because ....

(a) the nerves work for a period after death.
(b) the beating of the heart is spontaneous.
(c) the heart contains a large amount of blood.
(d) none of the above.

17 Glycolysis represents anaerobic respiration, because ....

(a) it occurs in absence of oxygen.
(b) it occurs in cytosole.
(c) it occurs during the aerobic and anaerobic respiration.
(d) it produces 2 ATP

18 .... is/are present in cytoplasm and mitochondria.

(a) NAD (b) FAD (c) Cytochromes (d) CoA

19 The number of ATP that is produced from Krebs cycle relative to 4 molecules of PGAL is ....

ⓐ 2 ⓑ 4 ⓒ 6 ⓓ 8

20 To begin Krebs cycle, oxygen must be provided to ....

ⓐ form citric acid.

ⓑ change one molecule of pyruvic acid into acetyl group.

ⓒ change citric acid into ketoglutaric acid.

ⓓ change succinic acid into malic acid.

Second Answer the following questions (21 : 24) *1 Mark for each*

21 **Give reason :** pancreas secretes two types of enzymes. (active and inactive).

22 **Give reason :** the roses are picked early in the morning and placed immediately on a sponge dipped in water.

23 **Give reason :** artery can pulsate, but vein can't pulsate.

24 The insect eater plant, such as Drosera is partially autotrophic. **Interpret this statement.**

Exam 10

Al-Gharbia Governorate

"Science Inspection"




First Choose the correct answer (1 : 20) *1 Mark for each*

1 Which of the following properties helps the root hairs to fix plant in the soil ?

ⓐ They have a big vacuole. ⓑ They have a thin wall.
ⓒ They secrete a viscous substance. ⓓ They have a thin layer of cytoplasm.

2 When the wind blows on the stems, which of the following tissues maintains their straightness ?

ⓐ Epidermis. ⓑ Pericycle. ⓒ Phloem. ⓓ Pith.

3 "PGAL is produced as an intermediate compound in two opposite processes". What are these processes ?

ⓐ Catabolism in green plastid and anabolism in mitochondria.
ⓑ Catabolism in cytoplasm and anabolism in chloroplast stroma.
ⓒ Catabolism in cytoplasm and anabolism in chloroplast grana.
ⓓ Catabolism in mitochondria and anabolism in green plastid.

4 The following figure represents one of the green algae. Study it, then answer the following. This organism depends on .... nutrition and .... for transport.

ⓐ autotrophic - xylem and phloem
ⓑ heterotrophic - xylem and phloem
ⓒ autotrophic - diffusion and active transport
ⓓ heterotrophic - diffusion and active transport



5 Which of the following helps the nose to work as a filter ?

ⓐ It contains blood capillaries. ⓑ It contains cilia.
ⓒ It contains mucus and hairs. ⓓ It contains cartilages.

6 Which of the following accompanies the conversion of glucose to glucose 6-phosphate ?

ⓐ O_2 consumption. ⓑ CO_2 production.
ⓒ Energy production. ⓓ Energy consumption.

7 We can distinguish heartbeats into two sounds, when we can hear the long and low pitched sound ?

ⓐ During opening of bicuspid and tricuspid valves.
ⓑ During opening of the semi-lunar valves.
ⓒ During opening of bicuspid and pulmonary valves.
ⓓ During opening of tricuspid and aortic valves.

8 Photosynthesis process includes two types of reactions, which of the following characterizes the second type ?

ⓐ Fixation of light. ⓑ Fixation of CO_2 gas.
ⓒ Occurrence at dark only. ⓓ Occurrence at light only.

9 "Mechanical digestion in mouth helps in the chemical digestion in other parts of the digestive canal". What is the reason for that ?

ⓐ It helps in killing microbes of food. ⓑ It increases the surface area of food.
ⓒ It improves the taste of food. ⓓ It regulates the pH value.

10 In the opposite graphic relation, which of the following can express (X) and (Y) respectively ?

(Y)
(X)

ⓐ Root pressure - The height of water column.
ⓑ The diameter of xylem vessels - The height of water column.
ⓒ The height of water column - Root pressure.
ⓓ The height of water column - The diameter of xylem vessels.

11 The organ expressed in the opposite figure is similar to the lower part of small intestine in the absorption of which of the following ?

ⓐ Water. ⓑ Glucose.
ⓒ Water and salts. ⓓ Water and glucose.

12 Which of the following enzymes produces monomers from its action ?

ⓐ Peptidase. ⓑ Trypsin. ⓒ Amylase. ⓓ Pepsin.

13 No backflow of blood occurs in the veins of the limbs with the help of ....

ⓐ semi-lunar valves. ⓑ lymphatic vessels. ⓒ valves. ⓓ heart valves.

14 Through which of the following the lymph fluid returns to the circulatory system ?

ⓐ Inferior vena cava. ⓑ Superior vena cava.
ⓒ Aorta. ⓓ Pulmonary artery.

15 Which of the following layers allows the light to pass inside the plant leaf ?

ⓐ Layer that contains air chambers. ⓑ Layer that is rich in plastids.
ⓒ Layer that is impermeable to water. ⓓ Layer that contains vascular tissue.

16 In an experiment, some cells are put directly in solution that has a certain concentration, then the cells burst after period of time, which of the following expresses the experiment result ?

	Type of cells	Cells osmotic pressure	Solution osmotic pressure
(a)	Plant cells	220 mOsm per L	350 mOsm per L
(b)	Red blood cells	220 mOsm per L	350 mOsm per L
(c)	Plant cells	250 mOsm per L	0 mOsm per L
(d)	Red blood cells	250 mOsm per L	0 mOsm per L

17 Which of the following represent(s) the walls of blood vessels that spread between liver cells ?

(a) Muscular layer.
(b) Connective tissue, muscular layer and epithelial cells.
(c) Connective tissue.
(d) Epithelial cells.

18 When a human suffers from an inflammation in the appendix, which of the following increase(s) in blood ?

(a) Red blood cells. (b) White blood cells. (c) Blood platelets. (d) Plasma.

19 Which phenomenon of the following is responsible for cytoplasmic streaming in phloem ?

(a) Diffusion. (b) Imbibition. (c) Osmosis. (d) Active transport.

20 All blood circulation pathways begin and end in the heart **except** the .... circulation.

(a) hepatic portal (b) pulmonary (c) systematic (d) major

Second Answer the following questions (21 & 22) *2 Marks for each*

21 "Mucus is secreted along the alimentary canal and it has different functions according to the site where it is secreted".

Explain : the function of mucus in **two** different sites in the alimentary canal.

22 **"In exhalation process the body gets rid of CO_2 gas".**

(a) In which organelle of the cell CO_2 is formed ?

(b) Which artery carries CO_2 gas from heart to lung ?



كيفية طباعة صفحات معينة من ملف معين

مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9



خطوة 1

خطوة 2
اختيار اسم الطابعة بتاعتك

خطوة 3
كتابة الصفحات المراد طباعتها
نكتب رقم 4 ثم نكتب الشرطة دي – ثم نكتب 9

خطوة 4
اختيار نوع الورق

خطوة 5
اختيار A4

خطوة 6

حمل الان

مجانا وحصريا

امتحانات رقم (2)





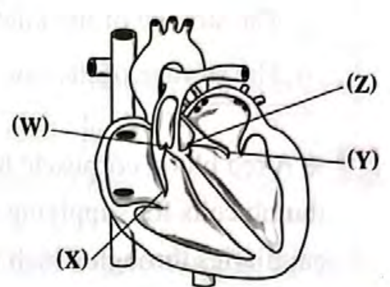


General Exam 1



Choose the correct answer (1 : 20) :

1 The opposite figure shows a longitudinal section in the heart, which of the following valves prevent the backflow of the oxygenated blood ?



ⓐ (Y) & (W). ⓑ (X) & (W).
ⓒ (Z) & (Y). ⓓ (X) & (Y).

2 Which of the following conversions includes the oxidation process of co-enzymes ?

ⓐ Pyruvic acid from phosphoglyceraldehyde.
ⓑ Succinic acid from ketoglutaric acid.
ⓒ Malic acid from succinic acid.
ⓓ Lactic acid from pyruvic acid.

3 In an experiment, a student put four potato slices (the length of each slice was 5 cm) in salt solutions with different concentrations, then he recorded the results in the opposite table, depending on the recorded results, which of the following expresses the solution that has the highest concentration ?

Salt solution	The length of the slice after 30 minutes
(1)	4.5 cm
(2)	4.8 cm
(3)	5 cm
(4)	5.3 cm

ⓐ (1). ⓑ (2). ⓒ (3). ⓓ (4).

4 Which of the following represents the correct arrangement for the stem tissues from inside to outside ?

ⓐ Epidermis / Cortex / Vascular bundle / Pericycle.
ⓑ Vascular bundle / Pericycle / Cortex / Epidermis.
ⓒ Vascular bundle / Epidermis / Cortex / Pericycle.
ⓓ Pericycle / Vascular bundle / Cortex / Epidermis.

5 Which of the following antagonizes with the function of chlorophyll in green plants ?

ⓐ The conversion of light energy into chemical energy.

ⓑ The absorption of the light energy required to photosynthesis.

ⓒ The storage of the kinetic light energy as a potential energy.

ⓓ The storage of the raw materials required to photosynthesis.

6 * A red blood corpuscle began its journey from an artery in the left arm directed to the thumb cells for supplying them with oxygen. What is the number of sites of the blood capillaries through which the red blood corpuscle passed during its journey till returning to the left ventricle ?

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 4

7 * The opposite graph illustrates the activity of amylase enzyme, what can be concluded from this graph ?

The reaction products

60

40

20

Time (minute)

0 1 2 3 4 5 6

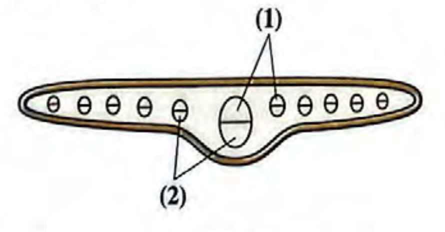
ⓐ The concentration of starch in the second minute is lower than that in the fourth minute.

ⓑ The concentration of glucose in the fourth minute is higher than that in the first minute.

ⓒ The concentration of maltose in the second minute is higher than that in the fourth minute.

ⓓ The concentration of maltose in the fourth minute is higher than the concentration of starch.

8 * In an experiment that illustrates the transport of water, the roots of a dicot plant were put in water coloured with a dye, after several hours, two sections were taken one from the stem and the other from the leaf of the plant. Which of the following parts would be coloured with the dye ?



(3)

(4)

ⓐ (1) and (3). ⓑ (2) and (4). ⓒ (2) and (3). ⓓ (1) and (4).

9 Which of the following is found in the human blood plasma in the normal cases ?

ⓐ Fibrin. ⓑ Thromboplastin. ⓒ Fibrinogen. ⓓ Thrombin.

10 Which of the following is(are) required for accomplishing the Krebs cycle in the presence of acetyl groups ?

ⓐ Glucose.
ⓑ NADH
ⓒ Respiratory enzymes.
ⓓ ATP molecules.

11 At pH = 8 and temperature 37°C, which of the following food substances **wouldn't** be digested, if it was externally treated with drops of the pancreatic juice ?

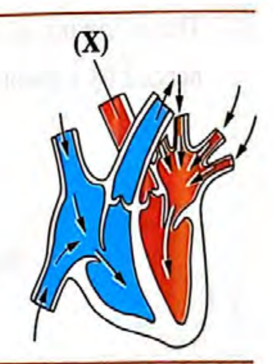
ⓐ A piece of meat.
ⓑ Peanut butter.
ⓒ A piece of bread.
ⓓ Rice.

12 ✻ "The different food substances like cane sugar and amino acids transfer through the sieve tubes of phloem". Which of the following statements describes this process correctly ?

ⓐ Sugars transfer by active transport in some sieve tubes, while amino acids transfer by diffusion in the other sieve tubes.
ⓑ Sugars and amino acids transfer together by active transport in the same sieve tube of phloem.
ⓒ Sugars move upward and amino acids move downward.
ⓓ Sugars move downward and amino acids move upward.

13 Study the opposite figure, then determine :

What is the pressure value in blood vessel (X) ?

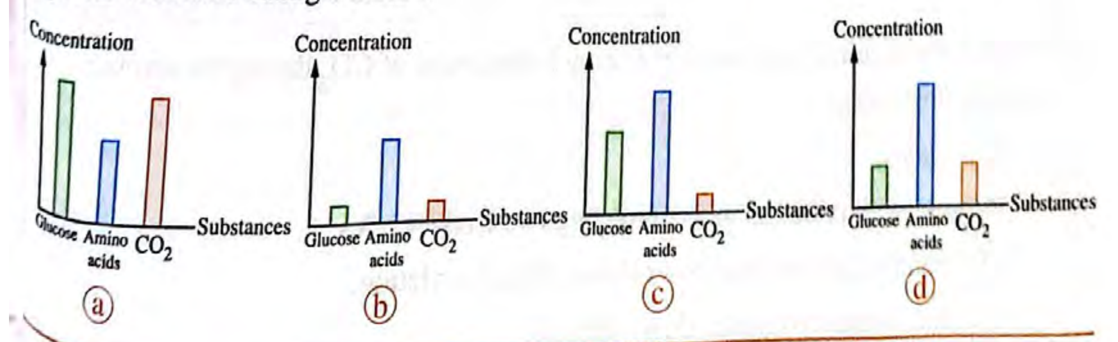


ⓐ 10 mm Hg.
ⓑ 70 mm Hg.
ⓒ 130 mm Hg.
ⓓ 160 mm Hg.

14 What are the food substances that are abundantly needed by a person doing weightlifting sport ?

ⓐ Juices and vegetables.
ⓑ Rice and juices.
ⓒ Meat and juices.
ⓓ Rice and vegetables.

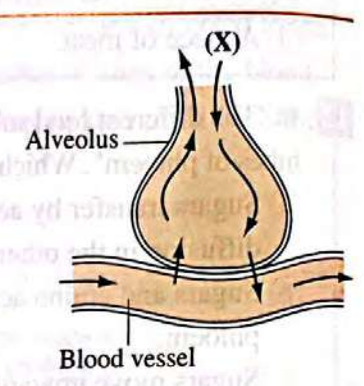
15 Which of the following graphs describes the substances concentration in the hepatic portal vein after eating a meal ?

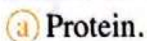


16 Some soil fungi cause wilting diseases for some crops, where they attack the xylem vessels and grow inside them, which of the following <u>isn't</u> affected by these fungi ?

ⓐ Cohesion force among H_2O molecules.
ⓑ The rate of performing photosynthesis process.
ⓒ The flow rate of solutes during transport process.
ⓓ The transpiration rate of plant during daytime.

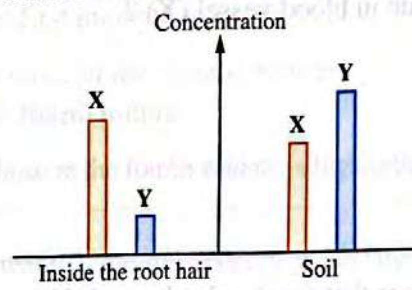
17 By your study for the opposite figure, what is the substance that is formed from the combination of substance (X) with haemoglobin in the red blood corpuscle in the two lungs ?





ⓐ Protein.
ⓑ Carbo-aminohaemoglobin.
ⓒ Iron.
ⓓ Oxyhaemoglobin.

18 The following graph shows the concentration of ion (X) and ion (Y) for the elements needed by a plant in the soil and inside the root hair of this plant :



What are the physical phenomena that lead to the transferring of (X) and (Y) respectively ?

ⓐ Active transport / Diffusion.
ⓑ Selective permeability / Active transport.
ⓒ Diffusion / Selective permeability.
ⓓ Selective permeability / Diffusion.

19 What is the required condition for exiting 6 molecules of CO_2 during the aerobic cellular respiration ?

ⓐ Glycolysis.
ⓑ Pyruvic acid oxidation and completing two Krebs cycles.
ⓒ The occurrence of complete oxidative phosphorylation.
ⓓ The consumption of more O_2 by the cell.



20 What happens if you put a plant cell in a sucrose solution whose concentration is more than the cell osmotic pressure ?

ⓐ It will swell. ⓑ It will shrink.

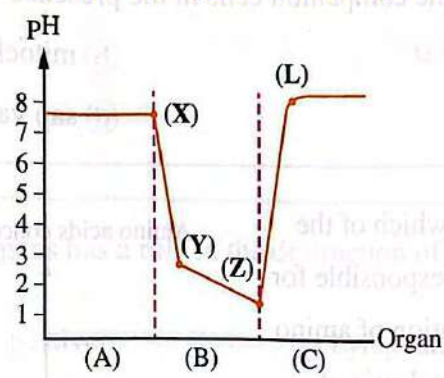
ⓒ It will not be affected. ⓓ It will burst.

Answer the following questions (21 : 23) :

21 **What is the relation between :** the red blood cells and facilitating the digestion of fats ?



22 **The following graph illustrates three organs in the digestive canal (A), (B) and (C) :**



Illustrate the substance which is responsible for the change in pH :

(a) From point (X) to point (Y).

(b) From point (Z) to point (L).

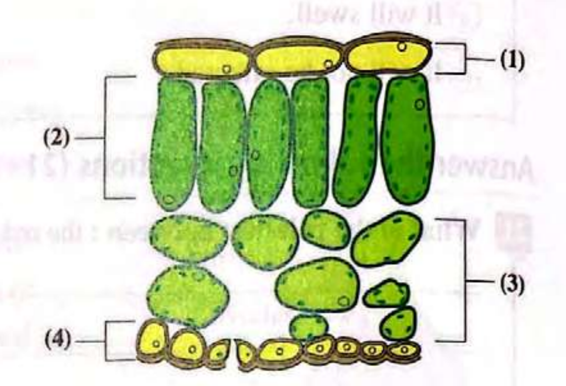
23 **Suggest one reason for :** stopping the reactions of the electron transport chain.

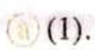
General Exam 2

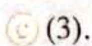


Choose the correct answer (1 : 20) :

1 The opposite figure illustrates a part of the transverse section in a leaf of a plant, which of the following tissues is the most efficient to perform the photosynthesis process ?





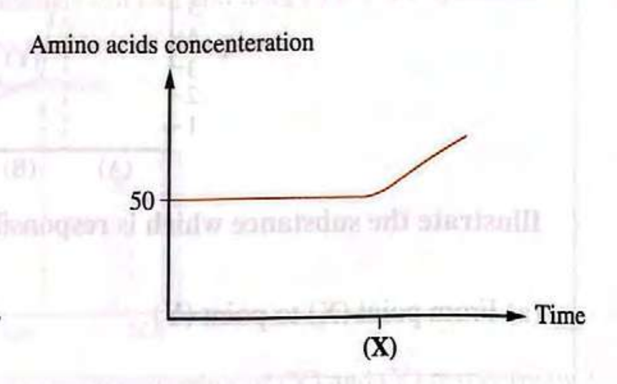


ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

2 The sieve tubes share the companion cells in the presence of ....

ⓐ cytoplasm. ⓑ mitochondria.
ⓒ nucleus. ⓓ sap vacuole.

3 In the opposite graph, which of the following enzymes is responsible for changing the concentration of amino acids in the hepatic portal vein at point (X) ?



ⓐ Lipase. ⓑ Amylase.
ⓒ Peptidase. ⓓ Pepsin.

4 * Which of the following percentages are equal ?

ⓐ The percentage of O_2 in the inhaled air with its percentage in the alveolar air.
ⓑ The percentage of CO_2 in the exhaled air with its percentage in the alveolar air.
ⓒ The percentage of N_2 in the inhaled air with its percentage in the exhaled air.
ⓓ The percentage of H_2O in the inhaled air with its percentage in the exhaled air.

5 How far are these statements "the green plant is autotrophic", "it absorbs water and glucose from the soil" correct ?

ⓐ The two statements are correct and related.
ⓑ The two statements are correct and not related.
ⓒ The first statement is correct and the second statement is wrong.
ⓓ The first statement is wrong and the second statement is correct.

6 The opposite diagrammatic figure represents the heart and the main blood vessels, which of the following blood vessels has the highest blood pressure ?

ⓐ R
ⓑ S
ⓒ P
ⓓ Q

7 Which of the following organs has a role in the destruction of blood cells and causes the blood liquidity ?

ⓐ Spleen. ⓑ Liver. ⓒ Lymphatic node. ⓓ Bone marrow.

8 Which of the following elements is(are) **not** present in the food of aphid insect, when it is examined ?

ⓐ Amino acids. ⓑ Fatty acids. ⓒ Sucrose. ⓓ Water.

9 * The opposite figure illustrates two types of the body fluids circulating inside the vessels, if you know that (Y) contains enucleated cells, what do you expect about the components of fluid (Z) ?

ⓐ Water and soluble proteins.
ⓑ White blood corpuscles and insoluble proteins.
ⓒ Blood platelets and white blood corpuscles.
ⓓ Red blood corpuscles and blood platelets.

10 The blood that is transferred in each of pulmonary artery and inferior vena cava ....

ⓐ has the same pressure. ⓑ passes in a cavity with different width.
ⓒ has the same direction. ⓓ has a higher level of oxygen.

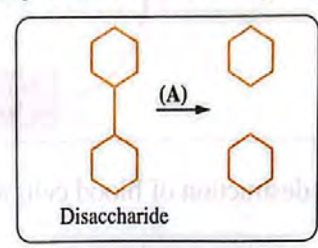
11 Which of the following vital processes **doesn't** need ATP ?

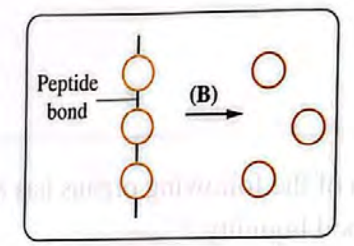
ⓐ Aerobic respiration.
ⓑ Glycolysis.
ⓒ Anaerobic respiration.
ⓓ H_2O splitting in the photosynthesis process.

12 "After eating too much salty sunflower seeds, we feel roughness in the internal side of lips". What is the reason for that ?

ⓐ The entry of salt into the lips' cells leads to their swelling.
ⓑ The exit of salt from the lips' cells leads to their shrinkage.
ⓒ The entry of water into the lips' cells leads to their swelling.
ⓓ The exit of water from the lips' cells leads to their shrinkage.

13 By your study to the two following diagrams :





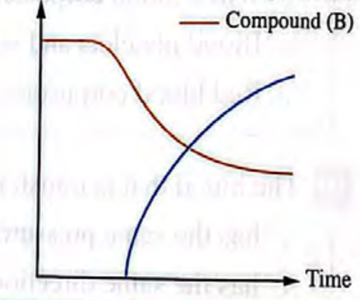
What is the suitable value of pH for the activation of enzymes (A) and (B) together ?

ⓐ 1.5
ⓑ 2.5
ⓒ 8
ⓓ 9

14 Which blood vessel contains the highest percentage of fats after completing the digestion and absorption processes ?

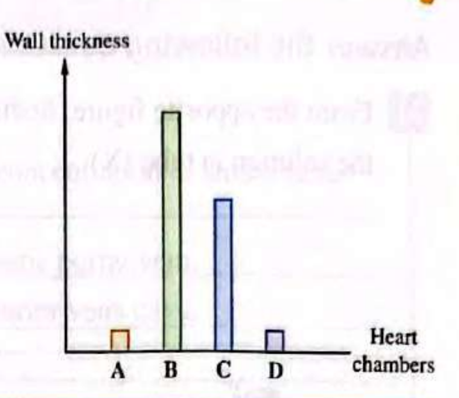
ⓐ Superior vena cava.
ⓑ Inferior vena cava.
ⓒ Hepatic portal vein.
ⓓ Hepatic vein.

15 The opposite graph represents the concentration of two types of compounds in the thigh muscles, during performing vigorous exercises, which of the following expresses (A) and (B) compounds respectively ?



ⓐ ADP / Glucose.
ⓑ Lactic acid / Glucose.
ⓒ Glycogen / ATP
ⓓ Glycogen / Lactic acid.

16 Study the opposite graph which shows the difference in the thickness of the heart chambers in human, what is the chamber that is represented by column (B) ?



ⓐ Right atrium. ⓑ Right ventricle.
ⓒ Left ventricle. ⓓ Left atrium.

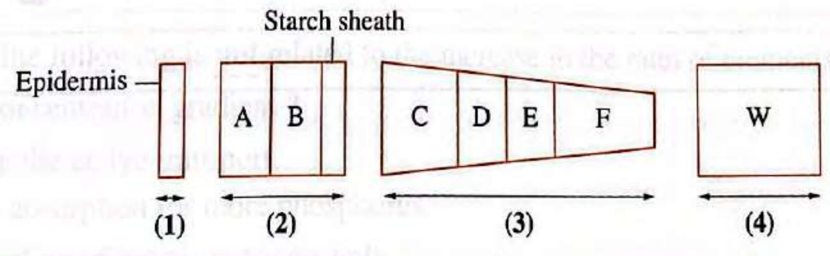
17 Which of the following choices expresses the distinguished characteristics of the structures that are found in the phloem of a cotton plant leaf ?

	Concentration of solutes in the cell	Lignification of cell walls
ⓐ	Low	Low
ⓑ	Low	High
ⓒ	High	Low
ⓓ	High	High

18 Which of the following compounds whose deficiency affects both the rate of respiration and photosynthesis processes in *Elodea* plant ?

ⓐ ATP ⓑ FAD ⓒ NAD^+ ⓓ NADP

19 The following diagram shows 4 parts in the stem of a dicot plant arranged from outside to inside, study it, then determine :



What is the function in which the cells of tissues (D) and (F) share ?

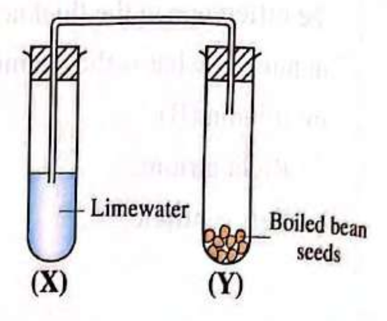
ⓐ Aeration. ⓑ Elasticity. ⓒ Sap storage. ⓓ Sap transfer.

20 In which of the following plants do you expect that the thickness of the precipitated cuticle layer on its epidermal cells increases ?

ⓐ Bean. ⓑ Corn. ⓒ *Elodea.* ⓓ Cactus.

Answer the following questions (21 : 23) :

21 From the opposite figure, **deduce** what happens to the solution in tube (X).

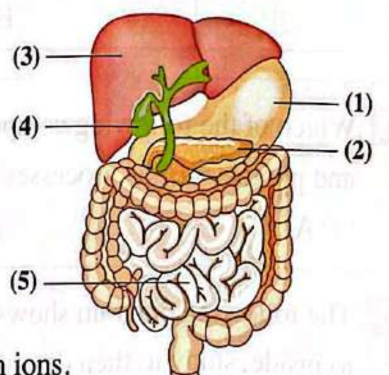


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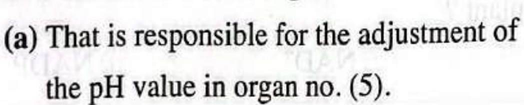
22 **Explain :** leaves represent the production lines, while phloem tissue represents the distribution lines in plant.

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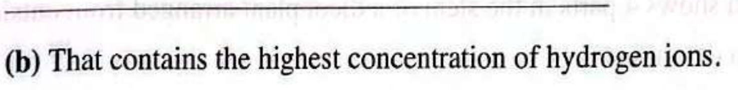
23 **The opposite figure illustrates a part of the human digestive system, write the number and the name of the organ :**



(a) That is responsible for the adjustment of the pH value in organ no. (5).



(b) That contains the highest concentration of hydrogen ions.



General Exam 3



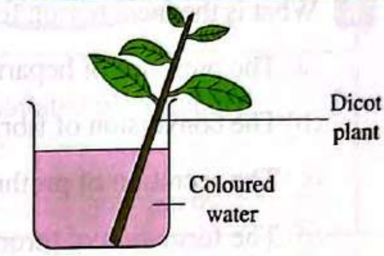
Choose the correct answer (1 : 20) :

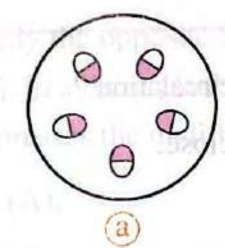
1 In which of the following blood vessels is the highest concentration of amino acids found after eating a meal rich in proteins ?

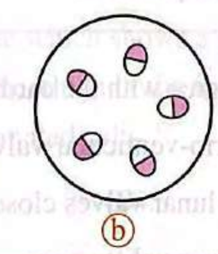
ⓐ Hepatic vein. ⓑ Hepatic portal vein.

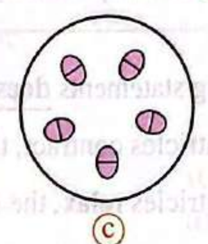
ⓒ Inferior vena cava. ⓓ Superior vena cava.

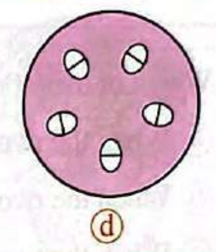
2 ✱ Which of the following figures represents a transverse section in the stem of the plant that is illustrated in the opposite figure ?




ⓐ


ⓑ


ⓒ


ⓓ

3 What happens when the number of red blood corpuscles in an adult person reaches 3 million cells / mm^3 of blood ?

ⓐ Its red colour intensity remains constant.

ⓑ The haemoglobin level increases in blood.

ⓒ The iron level increases in blood.

ⓓ The iron and haemoglobin levels decrease in blood.

4 ✱ Which of the following is **not** related to the increase in the rates of elements diffusion against the concentration gradient ?

ⓐ Increasing the active transport.

ⓑ The plant absorption for more phosphorus.

ⓒ The absorption of macro-nutrients only.

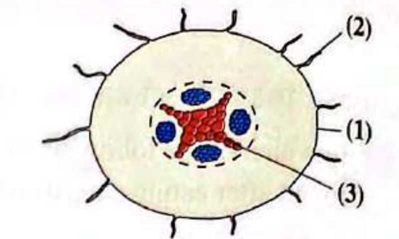
ⓓ The increase in the respiration rates.

5 ✱ Which of the following is synchronized with the relaxation of the walls of the right atrium ?

ⓐ Opening of mitral valve. ⓑ Closure of pulmonary valve.

ⓒ Opening of tricuspid valve. ⓓ Opening of aortic valve.

6 The opposite figure illustrates a transverse section in the plant root, which of the following parts play(s) the main role in the absorption of water and salts' ions ?



ⓐ (1).
ⓑ (2).
ⓒ (1) and (2).
ⓓ (3).

7 What is the main reason for starting the blood clot formation when a wound takes place ?

ⓐ The presence of heparin in blood.
ⓑ The conversion of fibrinogen into fibrin.
ⓒ The secretion of prothrombin by liver.
ⓓ The formation of thromboplastin by blood platelets.

8 Which of the following statements **doesn't** agree with the cardiac circulation ?

ⓐ When the two ventricles contract, the atrio-venticular valves close.
ⓑ When the two ventricles relax, the semi-lunar valves close.
ⓒ When the two atria contract, the semi-lunar valves open.
ⓓ When the two atria contract, the atrio-venticular valves open.

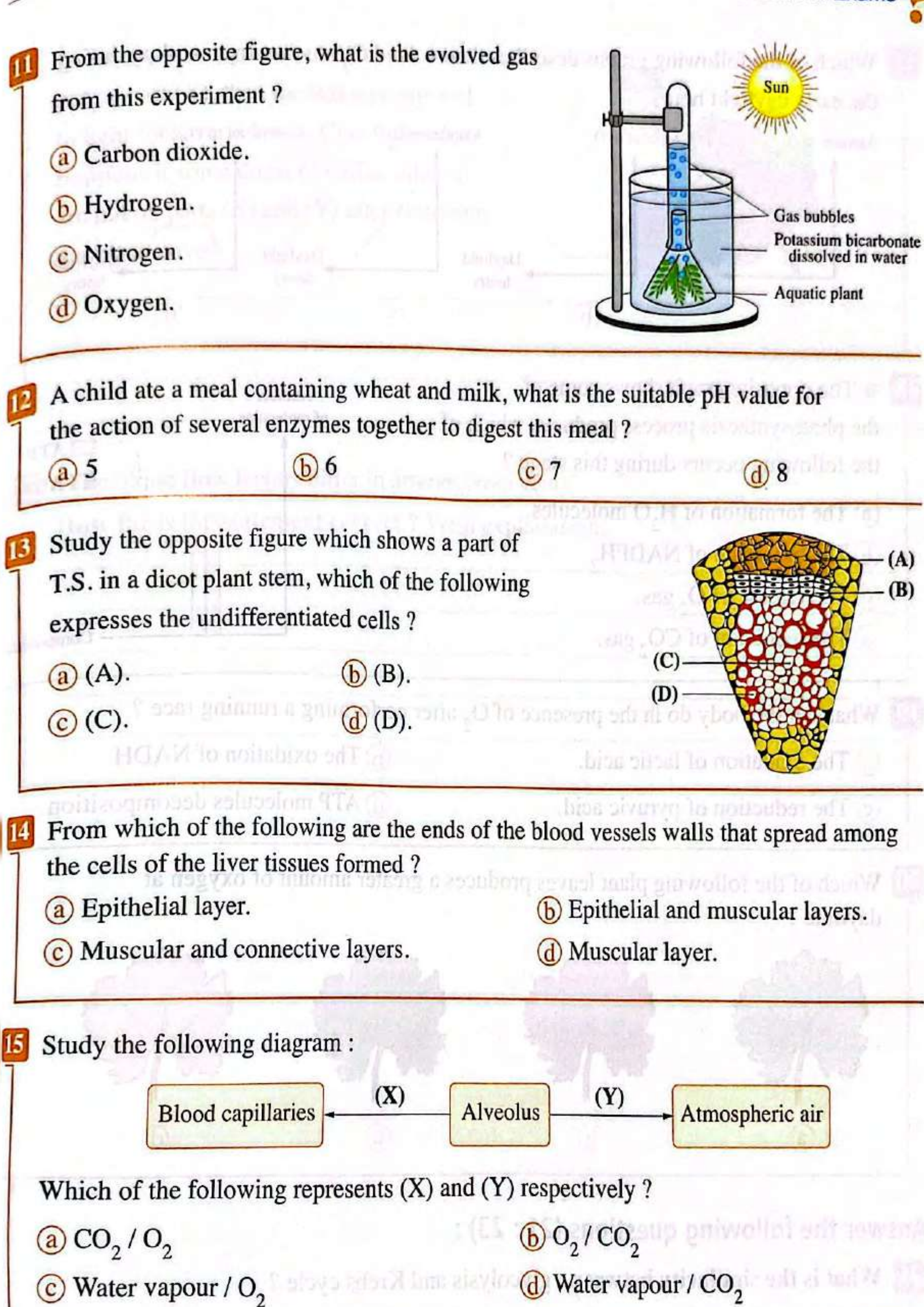
9 * What is the difference between the fermentation in yeast fungus and the fermentation in a fatigued muscle fiber ?

ⓐ The difference in the released energy amount from one molecule of glucose.
ⓑ Releasing less amount of CO_2
ⓒ The breaking down of a lower number of chemical bonds.
ⓓ Fats and proteins aren't used as a source of energy.

10 Which of the following statements is applied to the enzymes which are present in the raw fruits and vegetables ?

ⓐ These enzymes don't work inside the plant.
ⓑ These enzymes change their substrates inside the human body.
ⓒ The enzymes that are present in them become damaged by heating and cooking.
ⓓ These enzymes increase the activation energy.

11 From the opposite figure, what is the evolved gas from this experiment ?



ⓐ Carbon dioxide.

ⓑ Hydrogen.

ⓒ Nitrogen.

ⓓ Oxygen.

12 A child ate a meal containing wheat and milk, what is the suitable pH value for the action of several enzymes together to digest this meal ?

ⓐ 5 ⓑ 6 ⓒ 7 ⓓ 8

13 Study the opposite figure which shows a part of T.S. in a dicot plant stem, which of the following expresses the undifferentiated cells ?

(A)
(B)
(C)
(D)

ⓐ (A). ⓑ (B).

ⓒ (C). ⓓ (D).

14 From which of the following are the ends of the blood vessels walls that spread among the cells of the liver tissues formed ?

ⓐ Epithelial layer. ⓑ Epithelial and muscular layers.

ⓒ Muscular and connective layers. ⓓ Muscular layer.

15 Study the following diagram :

Blood capillaries ←(X)— Alveolus —(Y)→ Atmospheric air

Which of the following represents (X) and (Y) respectively ?

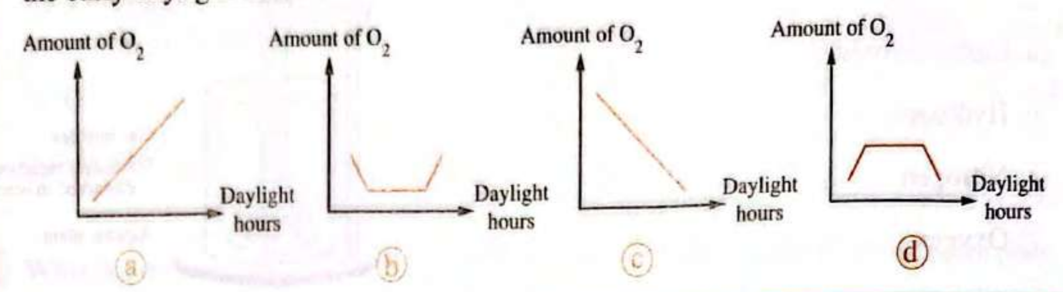
ⓐ CO_2 / O_2 ⓑ O_2 / CO_2

ⓒ Water vapour / O_2 ⓓ Water vapour / CO_2

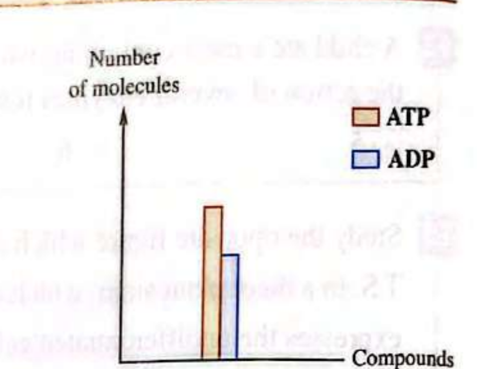
16 Which body organ can form and destroy two types of blood components ?

ⓐ Heart. ⓑ Liver. ⓒ Pancreas. ⓓ Spleen.

17 Which of the following graphs describes the evolved O_2 amount from a plant during the early daylight hours ?



18 * The opposite graph shows some of the photosynthesis process products, which of the following occurs during this stage ?



(a) The formation of H_2O molecules.

(b) The oxidation of $NADPH_2$

(c) The release of O_2 gas.

(d) The reduction of CO_2 gas.

19 What can the body do in the presence of O_2 after performing a running race ?

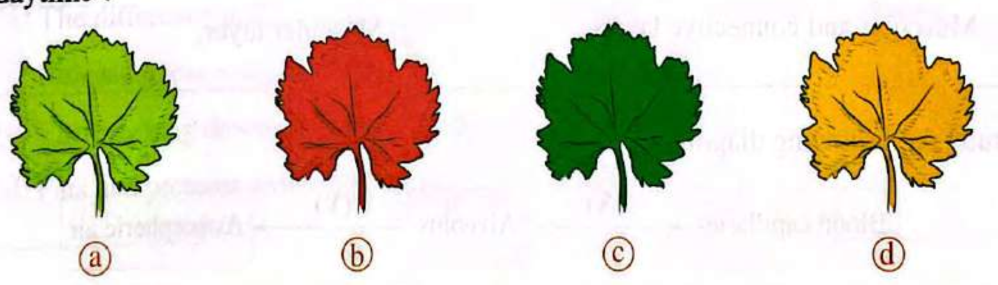
(a) The oxidation of lactic acid.

(b) The oxidation of NADH

(c) The reduction of pyruvic acid.

(d) ATP molecules decomposition.

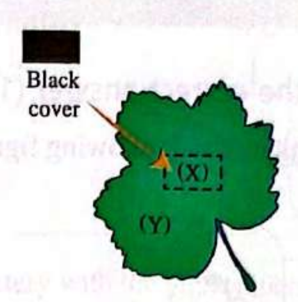
20 Which of the following plant leaves produces a greater amount of oxygen at daytime ?



Answer the following questions (21 : 23) :

21 **What is the similarity between :** glycolysis and Krebs cycle ?

22 In the opposite figure, a black cover was put on part (X), then the leaf was exposed to light for several hours. **Conclude what happens if** some drops of iodine solution are put on parts (X) and (Y) after removing the black cover.



23 "The blood flow factors differ in arteries from veins".

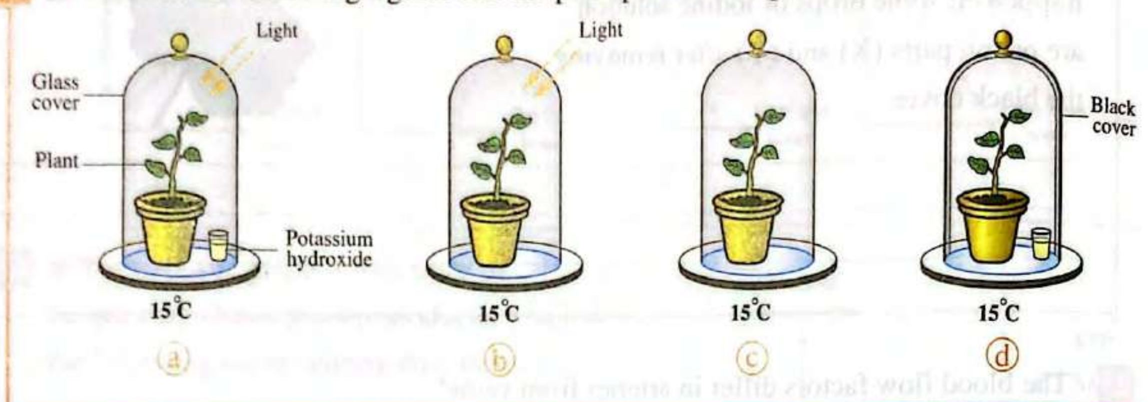
How far is the statement correct ? With explanation.

General Exam 4



Choose the correct answer (1 : 20) :

1 In which of the following figures can the plant perform the photosynthesis process ?



2 Which of the following **doesn't** agree with glycolysis and the reactions which occur in the grana of the chloroplast ?

(a) Both of them need energy.

(b) ATP molecules are released from both of them.

(c) Their occurrence is associated with the presence of co-enzymes.

(d) 3-carbon compound is formed in each one of them.

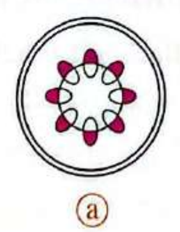
3 After performing a muscular effort, which of the following blood vessels carries the lowest concentration of CO_2 ?

(a) Hepatic vein. (b) Pulmonary artery. (c) Pulmonary vein. (d) Vena cava.

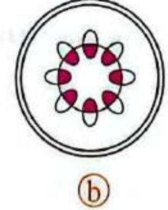
4 * What is the number of CO_2 molecules which is resulted from Krebs cycle, starting with a molecule of maltose ?

(a) 2 (b) 4 (c) 6 (d) 8

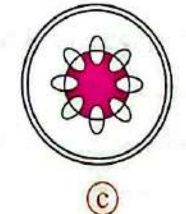
5 A plant was put in water containing red dye for 24 hours, then it was removed and several sections were taken from the plant stem, which of the following figures illustrates that ?



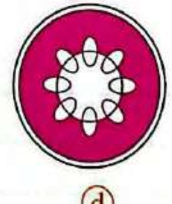
(a)



(b)



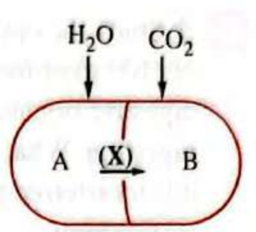
(c)



(d)



6 The opposite diagrammatic figure shows what happens inside the green plastid, which of the following represents (X) ?



ⓐ ATP and PGAL ⓑ ADP and CO_2
ⓒ H_2O and NADP ⓓ $NADPH_2$ and ATP

7 Which of the following is(are) found in the pulmonary artery with the highest percentage ?

ⓐ Oxyhaemoglobin. ⓑ Carbo-aminohaemoglobin.
ⓒ Haemoglobin. ⓓ Haemoglobin and oxyhaemoglobin.

8 * In which of the following stages is the least amount of ATP molecules released directly ?

ⓐ Glycolysis. ⓑ Oxidation of pyruvic acid into acetyl group.
ⓒ One Krebs cycle. ⓓ Electron transport chain.

9 The epidermis in plant stem has several functions which are storage, support and aeration. Which of the following tissues perform these functions respectively ?

ⓐ Parenchyma / Collenchyma / Starch sheath.
ⓑ Collenchyma / Parenchyma / Starch sheath.
ⓒ Parenchyma / Starch sheath / Collenchyma.
ⓓ Starch sheath / Collenchyma / Parenchyma.

10 What is the organ which secretes digestive juices for all types of food ?

ⓐ Stomach. ⓑ Liver. ⓒ Pancreas. ⓓ Duodenum.

11 What is(are) the substance(s) that form(s) the greatest portion of lymph ?

ⓐ Water. ⓑ Fats.
ⓒ Proteins. ⓓ Monosaccharides.

12 Which of the following is resulted from the presence of a hole in the septum between the two ventricles ?

ⓐ The stopping of Purkinje bundle action.
ⓑ The mixing of some oxygenated blood with the deoxygenated blood.
ⓒ The stopping of sino-atrial node action.
ⓓ The inability of the two ventricles to pump the blood.

13 * Study the opposite graph which shows the route of (100 g) of food substance (X) through different digestive organs after more than one hour of its ingestion. What is the form of substance (X) when it is transferred through the villi of small intestine ?

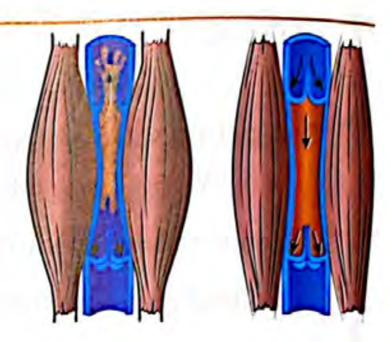
Amount of substance (X)
100 g
50 g
Mouth Stomach Small intestine
Digestive system organs

ⓐ Glycerol.
ⓑ Monosaccharides.
ⓒ Fatty acids.
ⓓ Amino acids.

14 What is the substance whose formation is affected by the decrease in vitamin (K) in blood ?

ⓐ Heparin. ⓑ Fibrin.
ⓒ Prothrombin. ⓓ Thromboplastin.

15 From studying the two opposite figures, what is the role of the muscles that surround the blood vessel ?



ⓐ Opening the valve when the muscles contract.
ⓑ Opening the valve when the muscles relax.
ⓒ The closure of the valve when a muscle contracts and the opposite muscle relaxes.
ⓓ Opening the valve when a muscle contracts and the opposite muscle relaxes.

16 Study the following pathways, then answer :

- Alveolus ⟶ O_2 ⟶ Blood capillaries.
- Small intestine ⟶ Amino acids ⟶ Blood capillaries.
- Atmospheric air ⟶ CO_2 ⟶ Plant cells.

What is the common mechanism in transferring the substances in the previous pathways ?

ⓐ Active transport. ⓑ Osmosis. ⓒ Diffusion. ⓓ Imbibition.

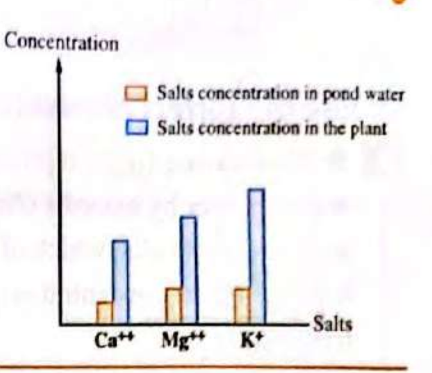
17 Which of the following is correct about what happens in the heart valves and is represented by the diastolic number during the blood pressure measurement ?

ⓐ The closure of aortic valve and opening the pulmonary valve.
ⓑ Opening the tricuspid valve and the closure of aortic valve.
ⓒ The closure of mitral and tricuspid valves.
ⓓ Opening the aortic and pulmonary valves.

18 Which of the following substances <u>isn't</u> formed inside the liver ?

ⓐ Bile juice. ⓑ Heparin.
ⓒ Glycogen. ⓓ Lipase enzyme.

19 From the opposite graph, by which of the following mechanisms the plant absorbs salts ?



ⓐ Diffusion.
ⓑ Permeability.
ⓒ Active transport and permeability.
ⓓ Cation or anion exchange.



20 Study the following table, then answer :

Substance	Concentration in villus	Concentration in transport vessels
Na^+	155 mg / 100 mL	15 mg / 100 mL
Glycine	0.1%	0.02%
H_2O	75%	70%
Cl^-	1.01 mg / 100 mL	1.5 mg / 100 mL
Fat droplets	0.35%	0.33%

Which of the following substances will be transferred to the transport vessels by the same phenomenon ?

ⓐ Na^+ and Cl^- ions.
ⓑ H_2O and Cl^- ions.
ⓒ Cl^- ions and glycine.
ⓓ Glycine and fat droplets.

Answer the following questions (21 : 23) :

21 **Write what the statement indicates :** "Non-living plant structures, where the shape of their inner surface changes from a plant to another".

____

22 From the opposite diagram, if you know that (A) and (B) are intermediate compounds which are formed through one of the cellular respiration stages inside the mitochondria and each one of them consists of the same number of carbon atoms, **what** is the name of product no. (1) ?

A → (Oxidation) → B
ATP (1)

____

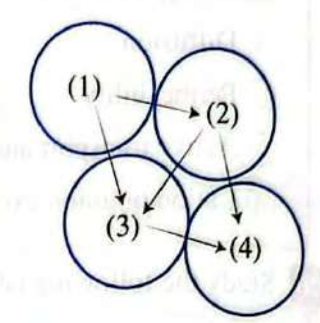
23 If you know that the saline solution which is given through a venous injection, its concentration is 0.9%, **deduce** what happens to the red blood corpuscles when the concentration of the saline solution is 1% or 0.5 %. **Explain your answer.**

____
____
____
____

General Exam 5

Choose the correct answer (1 : 20) :

1 * The opposite figure represents the movement of water transfer by osmosis phenomenon among four adjacent plant cells, which of the following cells has the highest concentration of salts before water transferring ?



ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

2 If a blood sample of a person contains 45% plasma, what is applied to this person ?

ⓐ This person has a deficiency in the salts percentage.
ⓑ This person drinks much water.
ⓒ This person suffers from anemia.
ⓓ This person has an increase in the number of RBCs.

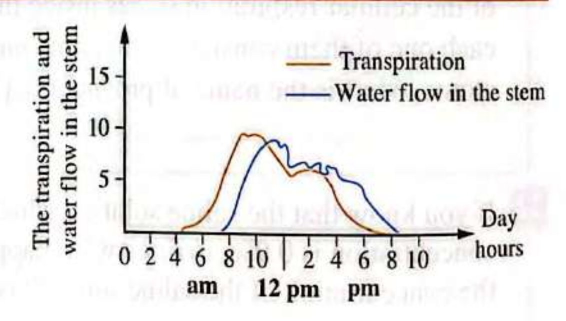
3 Which of the following **doesn't** agree with the occurrence of anaerobic respiration in the muscle ?

ⓐ The increase of lactic acid in the muscle.
ⓑ The depletion of oxygen in blood that reaches the muscle.
ⓒ The production of a large amount of NADH molecules.
ⓓ The muscle fatigue.

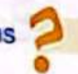
4 In which of the following cases the blood pressure value in human is the least ?

ⓐ The contraction of left ventricle. ⓑ The relaxation of right atrium.
ⓒ The closure of bicuspid valve. ⓓ The closure of semi-lunar valves.

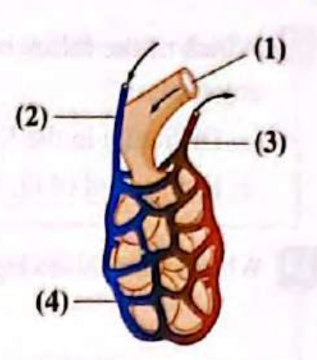
5 * What do you conclude from your study to the opposite graph ?



ⓐ The transpiration rate is constant all the day.
ⓑ There is no relation between the water flow in the stem and the transpiration rate.
ⓒ The highest flow of water in the stem is delayed than the highest transpiration rate.
ⓓ The transpiration rate can't reach zero.



6 From the opposite figure, which of the following structures contains the highest concentration of O_2 gas comparing to its concentration in the atmospheric air ?



ⓐ (1).
ⓑ (2).
ⓒ (3).
ⓓ (4).

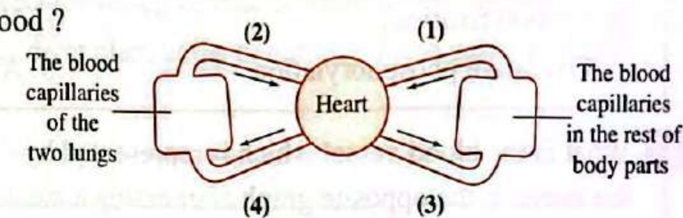
7 Which of the following statements is applied to the digestive juices that are secreted by liver and pancreas ?

ⓐ They digest the same food substances.
ⓑ They work at the same pH value.
ⓒ Their enzymes need activators to work.
ⓓ The same products of digestion are produced by their action.

8 Which of the following is **not** found in the blood plasma ?

ⓐ Insulin hormone. ⓑ Urea. ⓒ Albumin. ⓓ Oxygen.

9 * In the opposite figure, which of the blood vessels carry oxygenated blood ?



ⓐ (1) & (2).
ⓑ (1) & (3).
ⓒ (2) & (3).
ⓓ (2) & (4).

10 What happens during the passage of the food bolus in the oesophagus ?

ⓐ The carbohydrates digestion continues. ⓑ The fats digestion starts.
ⓒ The proteins digestion starts. ⓓ The digestion process stops.

11 What should be present for the occurrence of the anaerobic cellular respiration ?

ⓐ O_2 ⓑ CO_2 ⓒ Specific enzymes. ⓓ FAD

12 When will the process of water rising by the force of root pressure stop ?

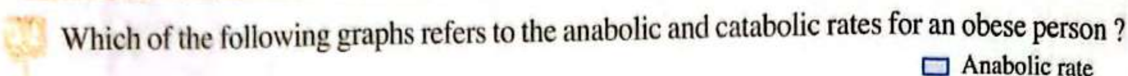
ⓐ When the water comes out from the stem by exudation.
ⓑ When the water transfers to the root cells by the imbibition phenomenon.
ⓒ When it increases more than 2 atmospheric pressure (atm).
ⓓ When it becomes equal to the pressure of water column in xylem vessels.

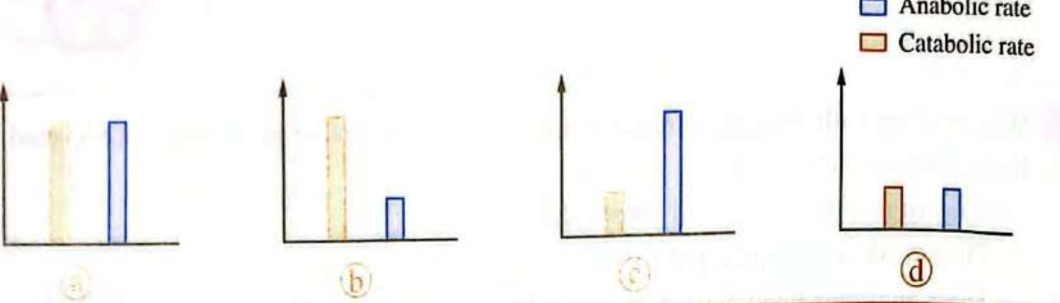
13 Which of the following may occur if suberin precipitated on the double membranes of chloroplast ?

ⓐ Difficulty in the light passage. ⓑ Chlorophyll won't be formed.

ⓒ High speed of O_2 formation. ⓓ Water passes easily.

14 Which of the following graphs refers to the anabolic and catabolic rates for an obese person ?





15 The living plant cells keep the internal concentration of ions which differs from the external concentration, what is the reason for continuing the difference in concentration ?

ⓐ Cell walls. ⓑ Cell vacuoles.

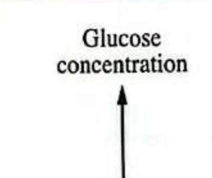
ⓒ Plastids. ⓓ Cell membranes.

16 Which of the following **doesn't** happen during dark reactions ?

ⓐ Carbon fixation. ⓑ $NADPH_2$ oxidation.

ⓒ Oxidative phosphorylation. ⓓ ATP consumption.

17 What is the blood vessel which is represented by the curve in the opposite graph after eating a meal rich in carbohydrates ?



ⓐ Hepatic portal vein.

ⓑ Pulmonary artery.

ⓒ Hepatic vein.

ⓓ Hepatic artery.

18 When we put the RBCs in a salt solution of unknown concentration for a period of time, the cells shrink, what do you conclude from this ?

ⓐ The concentration of salts in the solution is less than their concentration in the blood cells.

ⓑ The concentration of salts in the solution is more than their concentration in the blood cells.

ⓒ The concentration of salts in the solution is equal to their concentration in the blood cells.

ⓓ There is no relation between the salts concentration and the cells shrinkage.

19 How many heart valves through which a red blood corpuscle passes when it transfers from the right arm to the left arm are found ?

ⓐ 2 ⓑ 4 ⓒ 6 ⓓ 8

20 Which of the following enter(s) in the structure of ATP molecule that is made by the plant in addition to carbon, hydrogen and oxygen ?

ⓐ A macro-nutrient and a micro-nutrient.
ⓑ Two micro-nutrients.
ⓒ A macro-nutrient.
ⓓ Two macro-nutrients.

Answer the following questions (21 : 23) :

21 **Explain :** the salivary amylase enzyme is secreted in an active form, while trypsin enzyme is secreted in an inactive form.

22 **Calculate :** the number of ATP molecules which is resulted from the oxidation of 10 glucose molecules inside a seed of a dicot plant at the beginning of the germination process.

23 "The speed of the food substances transport in the plant depends on some external factors". **How far is the statement correct ? With explanation.**

General Exam 6



Choose the correct answer (1 : 20) :

1 Which of the following elements its absence **doesn't** affect the photosynthesis process ?

ⓐ Iron. ⓑ Phosphorus. ⓒ Calcium. ⓓ Magnesium.

2 What is the similarity between the lymphatic system and the circulatory system ?

ⓐ The presence of nodes that work on getting rid of pathogens.
ⓑ The presence of a network of arteries.
ⓒ The presence of a network of blood capillaries.
ⓓ Performing an immune function.

3 Which of the following tissues has the ability to divide mitotically in the plant ?

ⓐ Xylem. ⓑ Phloem. ⓒ Palisade tissue. ⓓ Cambium.

4 * In the opposite diagram, what do the two processes (1) and (2) represent ?

A (12C) —(1)→ B —(2)→ D + E + 38 ATP

ⓐ (1) is hydrolysis and (2) is catabolism.
ⓑ (1) is anabolism and (2) is hydrolysis.
ⓒ (1) is anabolism and (2) is catabolism.
ⓓ (1) is catabolism and (2) is anabolism.

5 What is the importance of water in photosynthesis process ?

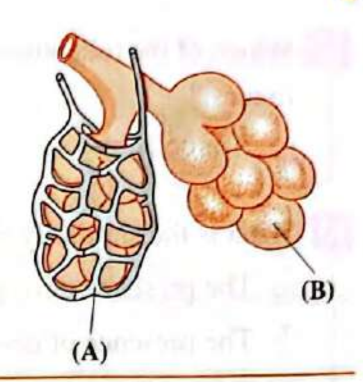
ⓐ A solvent for carbon dioxide gas.
ⓑ A source for the evolved oxygen.
ⓒ A source for hydrogen that is required for the reduction process.
ⓓ A receiver for light energy.

6 When CO_2 is consumed in photosynthesis process, which of the following illustrates the path of CO_2 diffusion in the leaf after entering through the stomata ?

ⓐ Cell wall → Plasma membrane → Intercellular spaces → Cytoplasm → Plastid's membrane.
ⓑ Intercellular spaces → Cell wall → Plasma membrane → Cytoplasm → Plastid's membrane.
ⓒ Intercellular spaces → Plasma membrane → Cell wall → Plastid's membrane → Cytoplasm.
ⓓ Intercellular spaces → Cytoplasm → Plasma membrane → Cell wall → Plastid's membrane.



7 In the opposite figure, structure (B) is surrounded by a network of structures (A) to transfer .... easily.



ⓐ O_2 from (A) to (B)
ⓑ CO_2 from (B) to (A)
ⓒ H_2O from (B) to (A)
ⓓ O_2 from (B) to (A)

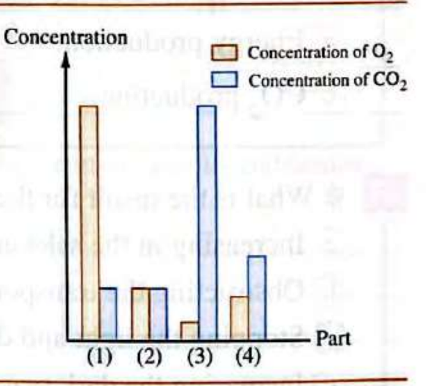
8 ❋ How far are these statements "the lining of small intestine contains villi and the lining of large intestine contains convolutions", "both play an important role in the absorption process" correct ?

ⓐ The two statements are correct.
ⓑ The two statements are wrong.
ⓒ The first statement is correct and the second statement is wrong.
ⓓ The first statement is wrong and the second statement is correct.

9 ❋ If the blood pressure value is 110 / 70 mm Hg, which of the following is synchronized with the measurement of number 110 ?

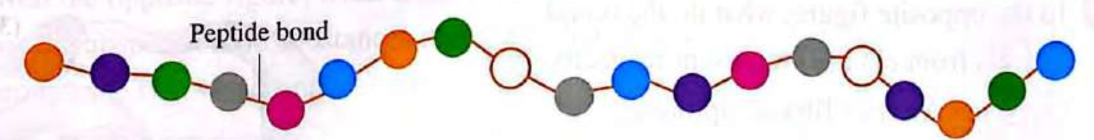
ⓐ The relaxation of ventricles.
ⓑ The contraction of atria.
ⓒ The opening of the valves with flaps.
ⓓ The opening of semi-lunar valves.

10 ❋ The opposite graph represents the concentration of CO_2 and O_2 gases in blood in different body parts, which of the following represents the blood flow through aorta ?



ⓐ (1).
ⓑ (2).
ⓒ (3).
ⓓ (4).

11 Study the following figure, then determine :



Which of the following end(s) the digestion of this compound completely ?

ⓐ Amylase enzyme in duodenum.
ⓑ Pepsin enzyme in stomach.
ⓒ Trypsin enzyme in small intestine.
ⓓ Peptidase enzymes in small intestine.

12 Which of the following substances **can't** be translocated through the phloem or xylem tissues ?

ⓐ Amino acids. ⓑ Sucrose. ⓒ Starch. ⓓ H_2O

13 What is the similarity between the pulmonary artery and the limbs' veins ?

ⓐ The presence of oxygenated blood.
ⓑ The presence of deoxygenated blood.
ⓒ Having the same internal width.
ⓓ Having the same blood pressure value.

14 The following nutrients are found in a piece of candy, which one of them **wouldn't** need to be digested ?

ⓐ Fats. ⓑ Glucose. ⓒ Protein. ⓓ Starch.

15 Which of the following phenomena work on transferring the solutes from and to the cell of a filamentous-shaped alga ?

ⓐ Diffusion and imbibition.
ⓑ Diffusion and active transport.
ⓒ Imbibition and active transport.
ⓓ Diffusion and osmosis.

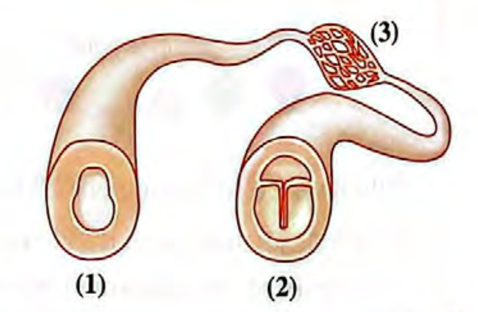
16 Which of the following is accompanied with the formation of glucose 6-phosphate ?

ⓐ Energy production.
ⓑ Energy consumption.
ⓒ CO_2 production.
ⓓ O_2 consumption.

17 * What is the result for the absence of pits from xylem vessels in a plant leaf ?

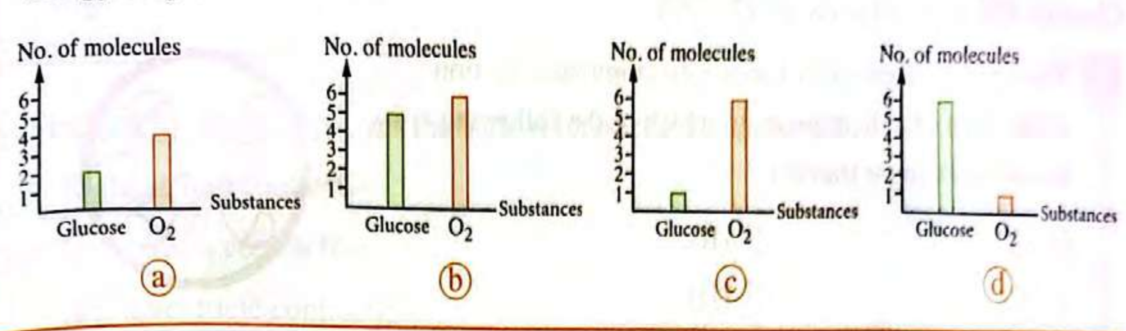
ⓐ Increasing in the salts and H_2O transport to the palisade cells.
ⓑ Obstructing the transport of sucrose and amino acids.
ⓒ Stopping the light and dark reactions.
ⓓ Increasing the dark reactions rate.

18 In the opposite figure, what do the blood vessels from (1) : (3) represent respectively ?



ⓐ Vein / Artery / Blood capillaries.
ⓑ Artery / Blood capillaries / Vein.
ⓒ Blood capillaries / Artery / Vein.
ⓓ Artery / Vein / Blood capillaries.

19 * Which of the following graphs represents the fetus need for glucose and O_2 to produce energy only ?

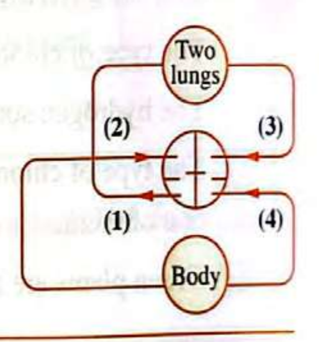


20 What is the reason for the decrease in the plant absorption of salts when the soil is soaked with water ?

ⓐ Decreasing salts in the soil.
ⓑ Lack of O_2 in the soil.
ⓒ Increasing O_2 in the soil.
ⓓ Increasing in the production of ATP in the root cells.

Answer the following questions (21 : 23) :

21 The opposite diagram represents the blood circulation in human, which contains an arrow with wrong direction. **Determine** its number and name.



....

....

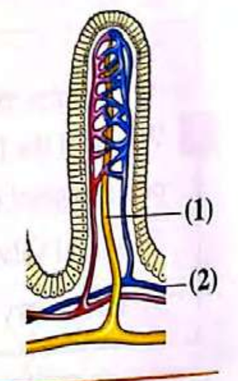
22 **Compare between :** the oxidation process for a piece of sugar in air and its oxidation inside a cell of a living organism's body.

....

....

....

23 From the opposite figure, **what** is the first blood vessel that the absorbed food substances may be gathered in it through the two vessels no. (1) and (2) ?



....

....

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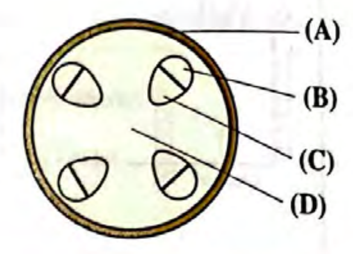
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General Exam 7

Choose the correct answer (1 : 20) :

1 The opposite figure illustrates a diagrammatic section in the stem of a dicot plant, in which of the following tissues does sugar transfer ?



ⓐ (A). ⓑ (B).
ⓒ (C). ⓓ (D).

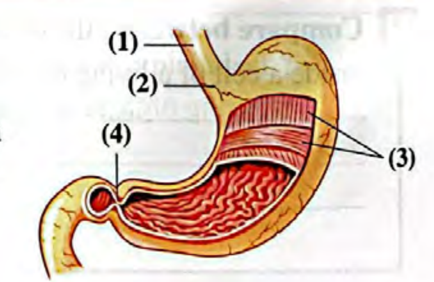
2 Which of the following is found in the blood that is carried by the arterioles inside the lung ?

ⓐ High percentage of wastes.
ⓑ A higher percentage of O_2 and a lower percentage of CO_2
ⓒ A higher percentage of CO_2 and a lower percentage of O_2
ⓓ An equal percentage of CO_2 and O_2

3 What is the difference between the green plants and the purple sulphur bacteria ?

ⓐ The type of chlorophyll in each one of them only.
ⓑ The hydrogen source which is required to reduce CO_2 in each one of them only.
ⓒ The type of chlorophyll and the source of hydrogen required to reduce CO_2 in each one of them.
ⓓ Green plants are autotrophic, while purple sulphur bacteria are saprophytes.

4 Some patients who have digestion complications suffer from the "Gastro-oesophageal reflux" which causes severe inflammation in the oesophagus, in which part in the opposite figure is the disturbance occurred to cause this ?



ⓐ (1). ⓑ (2).
ⓒ (3). ⓓ (4).

5 Which of the following valves determine the blood route which contains the highest percentage of oxyhaemoglobin substance ?

ⓐ Mitral valve and tricuspid valve. ⓑ Mitral valve and aortic valve.
ⓒ Pulmonary valve and aortic valve. ⓓ Bicuspid valve and pulmonary valve.

6 Which of the following substances **doesn't** transfer through the plant transport system ?

ⓐ H_2O ⓑ Glucose. ⓒ Cellulose. ⓓ Mg^{2+}

7 Which of the following gives the highest blood pressure in aorta ?

ⓐ Right atrium contraction.

ⓑ Left atrium contraction.

ⓒ Right ventricle contraction.

ⓓ Left ventricle contraction.

8 The human body contains a group of fluids that differ in their structure, which choice in the following table expresses the components of the blood plasma ?

	Water	Urea	Antibodies
ⓐ	✓	×	✓
ⓑ	✓	✓	×
ⓒ	✓	✓	✓
ⓓ	×	×	✓

✓	Present
×	Absent

9 In the light of your study, what is the similarity between the corn plant and *Orobanche* plant ?

ⓐ Performing photosynthesis process.

ⓑ The fixation of CO_2 gas.

ⓒ Converting low-energy compounds into high-energy compounds.

ⓓ Converting organic compounds into inorganic compounds.

10 In which of the following plants do you expect that the osmotic pressure is vanished ?

ⓐ Cotton. ⓑ Bean. ⓒ Maize. ⓓ *Pinus*.

11 What happens to the ketoglutaric acid when it is converted into succinic acid during cellular respiration ?

ⓐ It combines with O_2

ⓑ It consumes ATP molecules.

ⓒ It consumes CO_2

ⓓ It loses electrons.

12 Which of the following **doesn't** agree with glycolysis reactions and the reactions which occur in the chloroplast stroma ?

ⓐ Each of them doesn't occur in one step only.

ⓑ PGAL compound is formed in both of them.

ⓒ Both of them need energy.

ⓓ Each of them produces CO_2

13 Which of the following represent the reactants (substrates) for enzymes (A) & (B) respectively ?

ⓐ (Y) & (L).

ⓑ (Z) & (L).

ⓒ (Y) & (X).

ⓓ (X) & (Z).

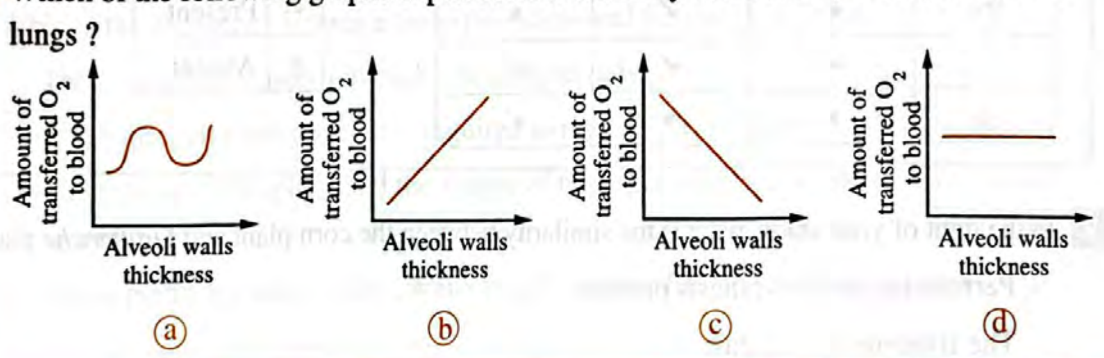
(A) (B)

Enzyme

Substrate

(Y) (X) (Z) (L)

14 Which of the following graphs expresses the efficiency of air sacs (alveoli) in the two lungs ?



15 Which of the following occurs when placing a plant cell in a salt solution whose temperature is 90°C ?

ⓐ Water and salts absorption completely stops.

ⓑ Salts absorption completely stops and water absorption continues.

ⓒ Water and salts absorption partially stops.

ⓓ Water absorption only stops.

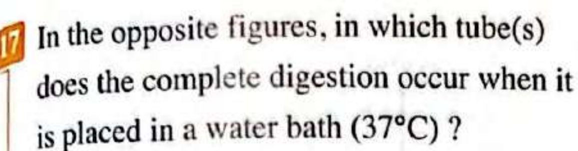
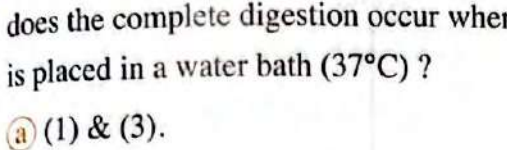
16 What is the result of the presence of a layer of cambium in the stem structure of a dicot plant ?

ⓐ An increase in the transport rate.

ⓑ The widening of the secondary xylem cavities.

ⓒ A decrease in the stem support.

ⓓ An increase in the length of phloem tubes.

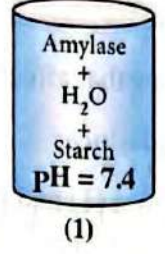
17 In the opposite figures, in which tube(s) does the complete digestion occur when it is placed in a water bath (37°C) ?

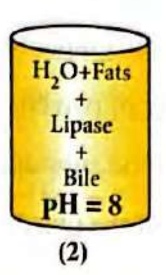
ⓐ (1) & (3).

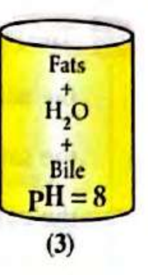
ⓑ (3) only.

ⓒ (1) & (2).

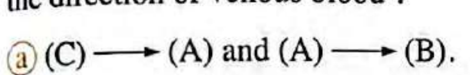
ⓓ (2) only.







18 The opposite figure shows the connection between two veins together, which of the following shows the direction of venous blood ?

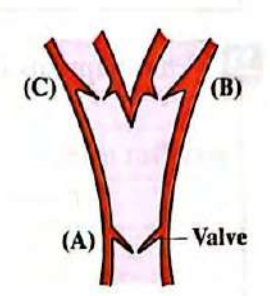


ⓐ (C) ⟶ (A) and (A) ⟶ (B).

ⓑ (B) ⟶ (C) and (A) ⟶ (C).

ⓒ (A) ⟶ (C) and (A) ⟶ (B).

ⓓ (C) ⟶ (A) and (B) ⟶ (A).



19 Which of the following tissues is mainly responsible for aeration in the plant leaves ?

ⓐ Palisade tissue.　　ⓑ Spongy tissue.

ⓒ Collenchyma tissue.　　ⓓ Vascular tissue.

20 * What is the number of the resulted ATP molecules directly from Krebs cycle, starting from a maltose molecule ?

ⓐ 1　　ⓑ 2　　ⓒ 4　　ⓓ 8

Answer the following questions (21 : 23) :

21 **Explain :** lymph plays an indirect role in blood clotting.

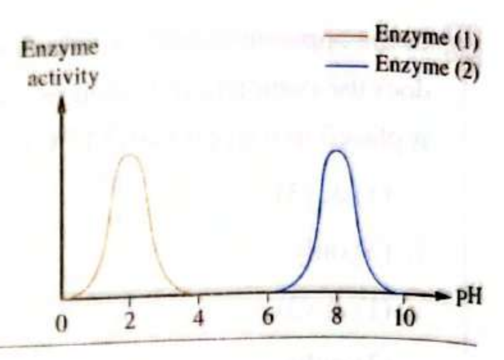
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22 The opposite graph illustrates the activity of two enzymes that affect the same food substance, **deduce** the name of the two enzymes (1) and (2).



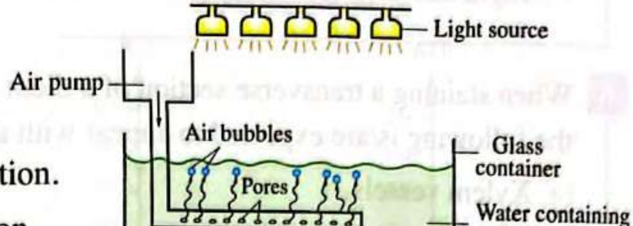
23 **What happens if :** the respiration of the root tissues stops ?



General Exam 8

Choose the correct answer (1 : 20) :

1 In the opposite figure, what is the gas that is supplied to green algae from the air pump ?



ⓐ CO_2 that is required for their respiration.

ⓑ O_2 that is required for their respiration.

ⓒ CO_2 that is required to perform photosynthesis process.

ⓓ O_2 that is required to perform photosynthesis process.

2 * What do you expect when examining a complete blood count for a woman suffering from general weakness, high rate of heartbeats and high respiration rate ?

ⓐ An increase in the number of red blood corpuscles.

ⓑ An increase in the number of white blood corpuscles.

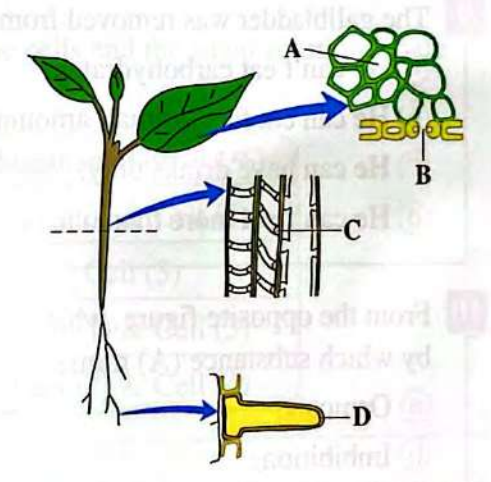
ⓒ A decrease in the number of red blood corpuscles.

ⓓ A decrease in the number of white blood corpuscles.

3 How many main blood vessels that carry oxygenated blood and connected to the heart are found ?

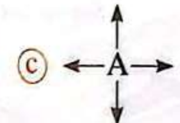
ⓐ 1 ⓑ 2 ⓒ 4 ⓓ 5

4 Which of the following arrows **doesn't** determine the pathway of H_2O molecules in the opposite figure ?



ⓐ D→


ⓑ C↓


ⓒ ←A→ (↑↓)

ⓓ B↓

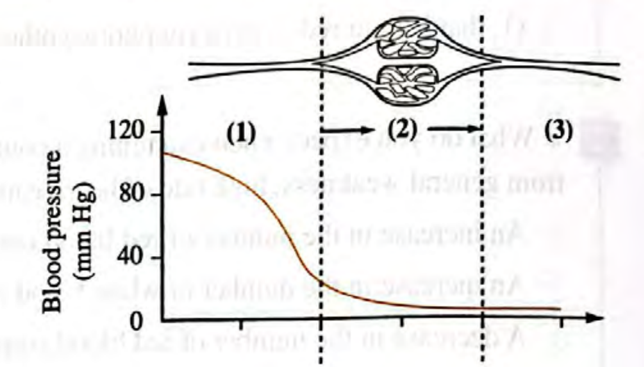
5 Which of the following reactions require the presence of CO_2 gas ?

ⓐ Light reactions only. ⓑ Dark reactions only.
ⓒ Light and dark reactions. ⓓ Glycolysis reactions.

6 When staining a transverse section of a dicot plant stem with iodine solution, which of the following is/are expected to appear with a dark blue colour ?

ⓐ Xylem vessels. ⓑ Companion cells.
ⓒ Cambium. ⓓ The innermost row of cortex.

7 * The opposite figure illustrates the blood flow in the blood vessels, what does part no. (3) represent ?



ⓐ Artery.
ⓑ Vein.
ⓒ Blood capillaries.
ⓓ Lymphatic vessel.

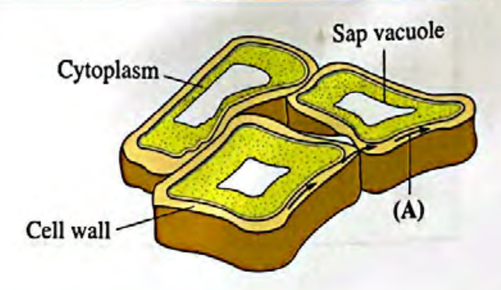
8 What is the ratio between the number of $FADH_2$ molecules to that of NADH molecules that are resulted from the complete oxidation of a glucose molecule in aerobic conditions ?

ⓐ 1 : 5 ⓑ 3 : 1 ⓒ 5 : 1 ⓓ 1 : 3

9 The gallbladder was removed from a person, which of the following is expected to occur ?

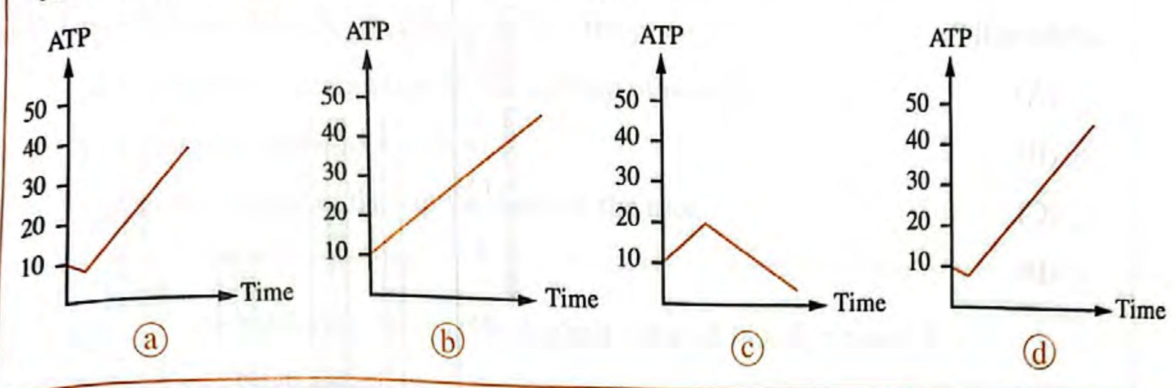
ⓐ He can't eat carbohydrates.
ⓑ He can eat fats in small amounts.
ⓒ He can have drinks only.
ⓓ He can't eat more than one big meal daily.

10 From the opposite figure, what is the phenomenon by which substance (A) transfers ?

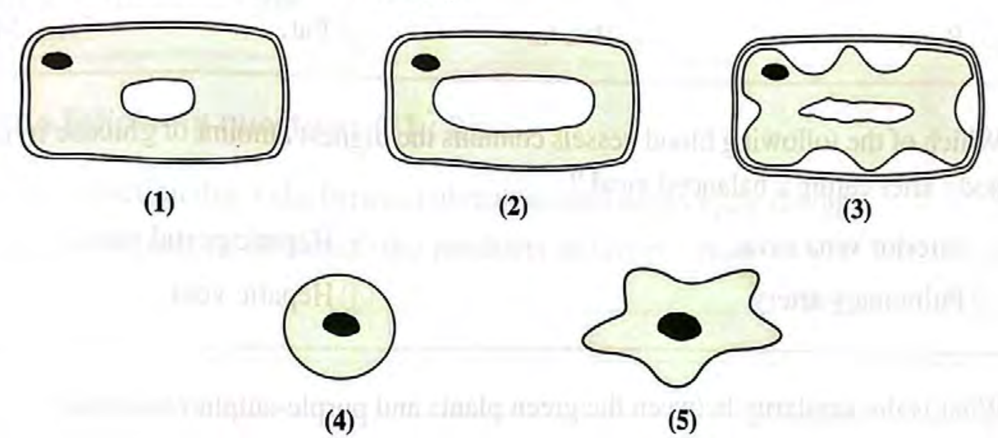


ⓐ Osmosis.
ⓑ Imbibition.
ⓒ Diffusion.
ⓓ Active transport.

11 * If we supposed that the cell storage for energy is 10 ATP molecules, which of the following graphs represents the number of ATP molecules after the aerobic oxidation for one glucose molecule with time ?



12 The following figures show some plant and animal cells after placing them in two sucrose solutions that have different concentrations (knowing that their osmotic pressure = 0.5 % of the sucrose solution) :



Which of the following choices is correct about the cells and the sugar solution where they are placed ?

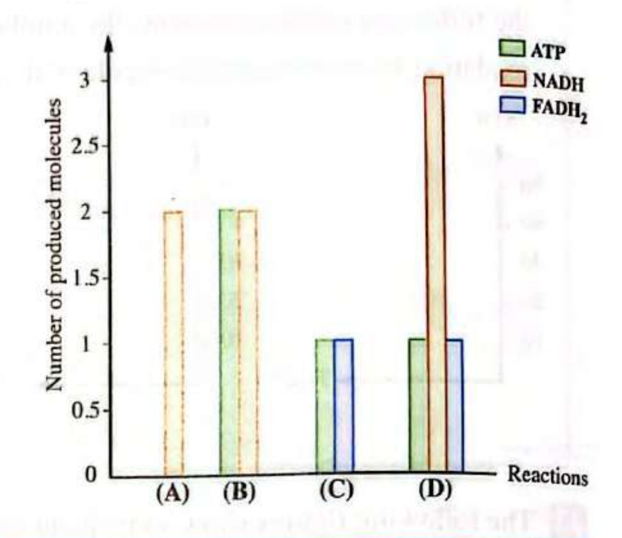
	Sugar solution (1%)	Sugar solution (0.1%)
ⓐ	Cell (1) & Cell (2)	Cell (3) & Cell (5)
ⓑ	Cell (1) & Cell (4)	Cell (3)
ⓒ	Cell (2) & Cell (4)	Cell (1) & Cell (3)
ⓓ	Cell (3) & Cell (5)	Cell (2) & Cell (4)

13 What is the amount of protein that is found in each 100 cm^3 of plasma in a normal person ?

ⓐ 5 g ⓑ 3 g ⓒ 7 g ⓓ 9 g

14 * Study the following graph which shows some products of aerobic cellular respiration reactions :

Which reaction occurs in the cytoplasm of the cell ?



ⓐ (A).

ⓑ (B).

ⓒ (C).

ⓓ (D).

15 Which type of food can be digested in both acidic and alkaline media ?

ⓐ Rice. ⓑ Potato. ⓒ Fat. ⓓ Meat.

16 Which of the following blood vessels contains the highest amount of glucose in the human body after eating a balanced meal ?

ⓐ Inferior vena cava. ⓑ Hepatic portal vein.

ⓒ Pulmonary artery. ⓓ Hepatic vein.

17 What is the similarity between the green plants and purple-sulphur bacteria ?

ⓐ The type of chlorophyll in both of them.

ⓑ The source of hydrogen required for CO_2 fixation in both of them.

ⓒ The dark reactions in both of them.

ⓓ The secondary products of photosynthesis process in both of them.

18 In which of the following vessels the blood clot **can't** be formed, inspite of the presence of the clotting factors inside them ?

ⓐ Arteries. ⓑ Lymphatic vessels.

ⓒ Veins. ⓓ Blood capillaries

19 Normal plants are cultivated in desert and small number of them adapted well with this environment, which of the following factors its increase leads to the well adaptation of these plants ?

ⓐ The tallness of the vegetative system of the plant.

ⓑ Increasing the concentration of the cell sap of root cells.

ⓒ The shortness of the root system.

ⓓ The small volume of the sap vacuoles of the root.

20 In which of the following cases is the highest value of blood pressure ?

ⓐ Relaxation of left ventricle.

ⓑ Contraction of right atrium.

ⓒ Opening the mitral valve.

ⓓ Opening the aortic valve.

Answer the following questions (21 : 23) :

21 There is a reaction that links between glycolysis and Krebs cycle during the cellular respiration, **illustrate the products of this reaction.**

22 **What is the difference between :** the blood capillaries that are present in villi and that are present in the alveoli ?

23 "Stomach has an important role in protecting the human body".

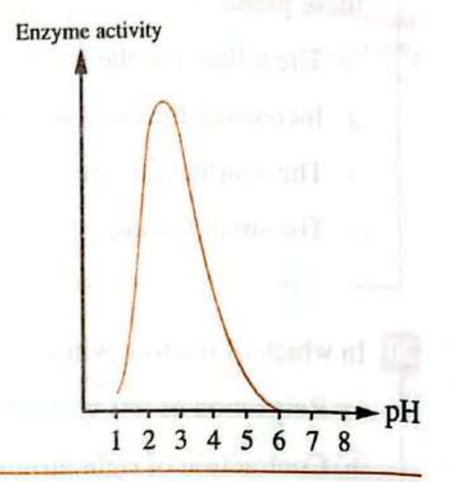
How far is the statement correct ? With explanation.

General Exam 9



Choose the correct answer (1 : 20) :

1 The opposite graph shows the effect of pH on the rate of a digestive enzyme activity, where is the enzyme found ?



(a) In bile juice.
(b) In gastric juice.
(c) In intestinal juice.
(d) In pancreatic juice.

2 Which of the following produces the lowest number of ATP molecules ?

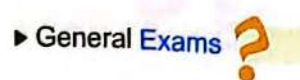
(a) $FADH_2$ molecule in the electron transport chain.
(b) The acidic fermentation.
(c) The alcoholic fermentation.
(d) One Krebs cycle.

3 Which of the following juices whose action is similar to the action of incisors ?

(a) Bile. (b) Pancreatic juice.
(c) Gastric juice. (d) Intestinal juice.

4 * A blood sample was taken from a blood vessel in the patient's body, on examining its external appearance, it was found that its colour is light red. What is the expected place for this sample to be taken from ?

(a) A blood vessel near to the skin surface.
(b) A blood vessel buried among muscles.
(c) Blood capillaries near to the skin surface.
(d) Blood capillaries buried among muscles.



5 Which of the following statements **doesn't** explain the transport process of water in the plant ?

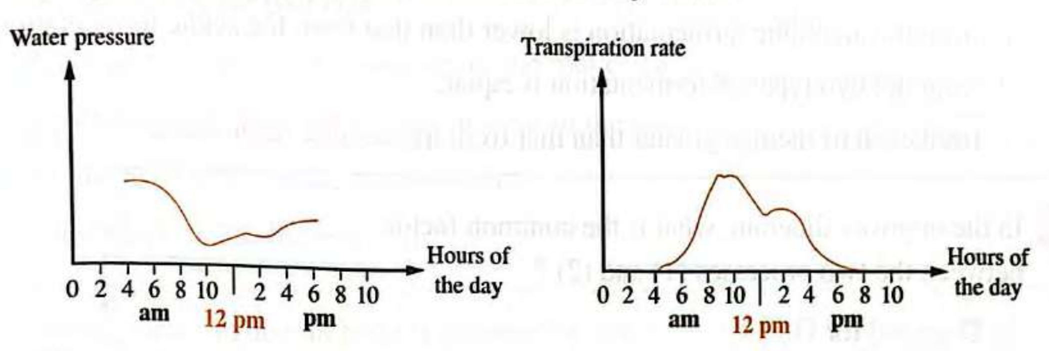
ⓐ Most of the released water from the leaf gets out through the stomata.

ⓑ The cohesion among the molecules of water causes the presence of a continuous column of water.

ⓒ The resulted effect from the transpiration process causes the presence of the continuous attraction of water column.

ⓓ The adhesion force between molecules of water and xylem vessels causes the column of water to be held continuously.

6 The two following graphs illustrate the rate of the transpiration process and the water pressure in the plant leaf cells within the day hours :



What do you conclude from your study to the two previous graphs ?

ⓐ The water pressure decreases inside the leaf cells with increasing the transpiration process.

ⓑ The water pressure increases inside the leaf cells with increasing the transpiration rate.

ⓒ The stomata of the leaf close at 10 am.

ⓓ The stomata of the leaf open at 4 am.

7 What is the process that occurred in the chloroplast and is opposite to the process of the photosynthetic phosphorylation ?

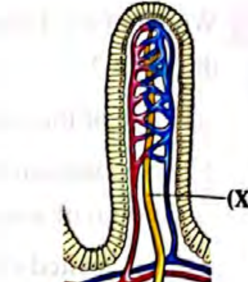
ⓐ The production of ATP from ADP in the grana.

ⓑ The production of ADP from ATP in the grana.

ⓒ The production of ATP from ADP in the stroma.

ⓓ The production of ADP from ATP in the stroma.

8 Which of the following the decrease in its production rate leads to a decrease in the food substances that are transferred to structure (X) ?

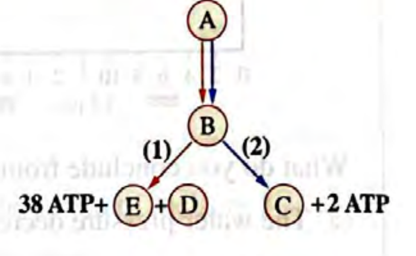


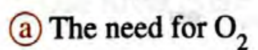
ⓐ Bile juice.
ⓑ Pepsin.
ⓒ Amylase.
ⓓ Sucrase.

9 In each of the alcoholic fermentation and the acidic fermentation, 2 molecules of ATP are released. So, the expected number of the resulted kilocalories from the hydrolysis of the released ATP molecules ....

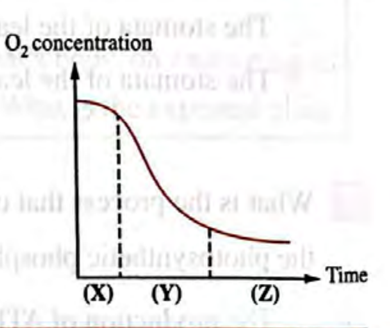
ⓐ from the alcoholic fermentation is greater than that from the acidic fermentation.
ⓑ from the alcoholic fermentation is lower than that from the acidic fermentation.
ⓒ from the two types of fermentation is equal.
ⓓ from each of them is greater than that from the aerobic respiration.

10 In the opposite diagram, what is the common factor between the two processes (1) and (2) ?



ⓐ The need for O_2
ⓑ The need for CO_2

ⓒ The need for energy.
ⓓ The need for FAD presence.

11 * What are the blood vessels (X) and (Z) that are expressed in the opposite graph respectively ?



ⓐ Pulmonary artery / Pulmonary vein.
ⓑ Renal artery / Renal vein.
ⓒ Vena cava / Pulmonary artery.
ⓓ Hepatic vein / Hepatic artery.

12 During preparation of a T.S. of a new dicot plant stem, iodine was added to the sample to be more clear, which tissue do you expect its cells **won't** be stained with the dark blue colour ?

ⓐ Cambium. ⓑ Cortex. ⓒ Medullary rays. ⓓ Pith.

13 * Which of the following represents the mechanism of absorbing the products of starch digestion ?

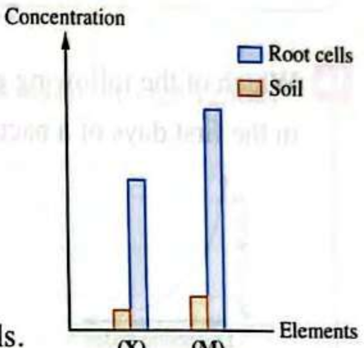
ⓐ Diffusion to the arterioles (arterial capillaries).

ⓑ Active transport to the lacteal vessel.

ⓒ Diffusion to the lacteal vessel.

ⓓ Active transport to the venules (venous capillaries).

14 Study the opposite graph which shows the plant need for (X) and (M) elements to perform vital processes, what is the factor that helps in increasing the concentration of (X) and (M) inside the root cells ?



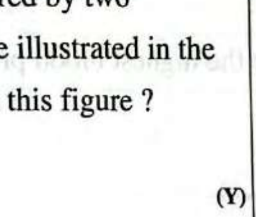
ⓐ Plenty of water inside sap vacuoles of the root cells.

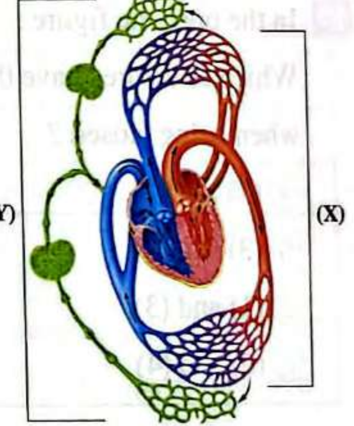
ⓑ The decrease of sugar inside sap vacuoles of the root cells.

ⓒ The decrease of O_2 inside the root cells.

ⓓ Plenty of O_2 inside the root cells.

15 Transport process in human body is occurred by two systems connected tightly together that are illustrated in the opposite figure, what do you deduce from this figure ?





ⓐ Systems (X) and (Y) are closed.

ⓑ Systems (X) and (Y) are opened.

ⓒ System (X) is closed and system (Y) is opened.

ⓓ System (X) is opened and system (Y) is closed.

16 When eating a meal that contains bread, rice and potatoes, what are the enzymes that will digest the three food substances ?

ⓐ Amylase and maltase.

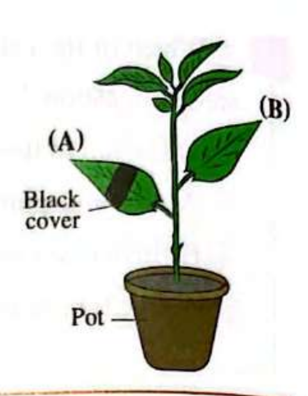
ⓑ Lipase and maltase.

ⓒ Amylase and lipase.

ⓓ Lipase and peptidase.

17 In the opposite figure :

Leaf (B) produces $C_6H_{12}O_6$ .... leaf (A).



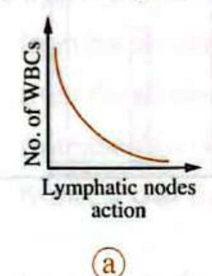
ⓐ more than

ⓑ less than

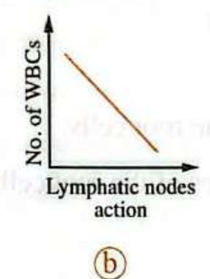
ⓒ equal to

ⓓ twice

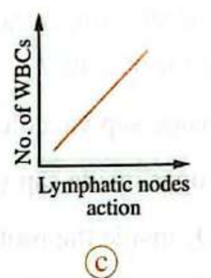
18 Which of the following graphs represents the immunity performance for a person's body in the first days of a bacterial infection ?



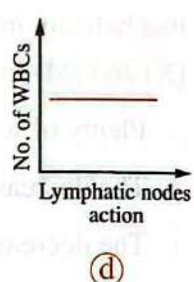
ⓐ



ⓑ



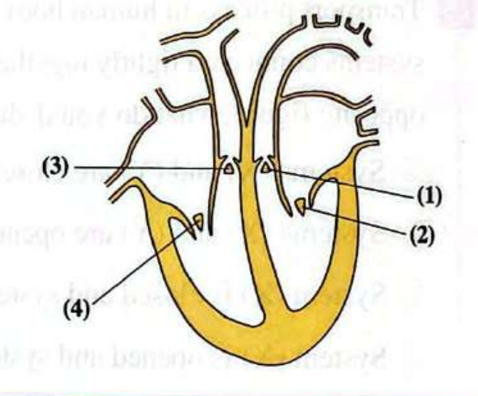
ⓒ



ⓓ

19 In the opposite figure :

Which structures have the highest blood pressure when being closed ?



ⓐ (1) and (2).

ⓑ (3) and (4).

ⓒ (1) and (3).

ⓓ (2) and (4).

20 Which of the following are permeable to water ?

ⓐ Cellulose walls only.

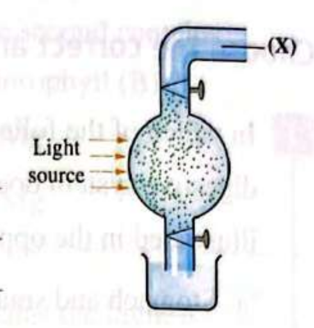
ⓑ Walls covered by lignin only.

ⓒ Walls covered by cutin and suberin.

ⓓ Plasma membranes and cellulose walls.

Answer the following questions (21 : 23) :

21 The opposite figure illustrates the experiment of Calvin, **what do you expect to happen if** the system is supplied with element (X) intermittently ?



22 The doctor may recommend a medicine for the patient, that is taken through venous injection not by mouth. **Suggest two reasons for that.**

23 "The aerobic respiration may occur after the anaerobic respiration".
How far is the statement correct ? With explanation.

General Exam 10



Choose the correct answer (1 : 20) :

1 In which of the following parts of the human digestive system does the process that is illustrated in the opposite figure occur ?

Protein → X → Y → Z → L

ⓐ Stomach and small intestine.
ⓑ Mouth and stomach.
ⓒ Oesophagus and small intestine.
ⓓ Mouth, stomach and duodenum.

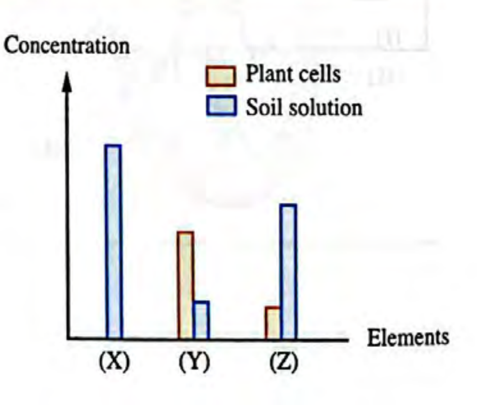
2 Which of the following produces the highest amount of energy ?

ⓐ The oxidation of phosphoglyceraldehyde aerobically.
ⓑ The oxidation of malic acid to oxaloacetic acid.
ⓒ The acidic fermentation of pyruvic acid.
ⓓ The alcoholic fermentation of pyruvic acid.

3 Which of the following can be used as a drug to prevent the formation of blood clots for some patients ?

ⓐ Fibrin. ⓑ Fibrinogen. ⓒ Heparin. ⓓ Thrombin.

4 ✱ The opposite graph illustrates the concentration of elements (X), (Y) & (Z) in the cells of a plant and in the soil solution, which of the following elements does(do) the rate(s) of respiration during its(their) absorption increase ?



ⓐ (X). ⓑ (Y).
ⓒ (Z). ⓓ (X) and (Z).

5 Which of the following tissues is **not** present in the leaf of cotton plant ?

ⓐ Mesophyll tissue. ⓑ Xylem.
ⓒ Phloem. ⓓ Cambium.

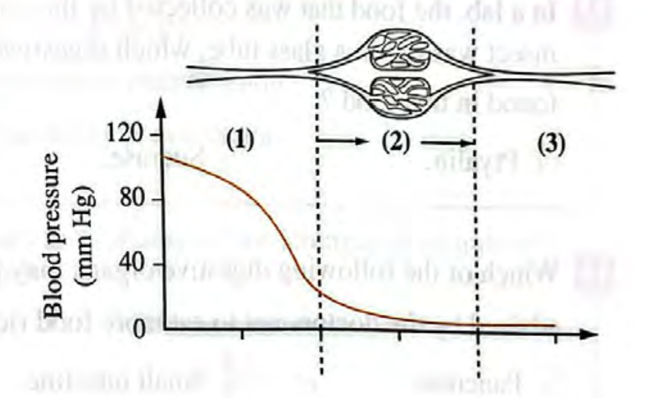
6 If you know that the difference between chlorophyll (A) and chlorophyll (B) is in one chemical group, as the first contains alkyl group (CH_3), while the second contains aldehyde group (CHO). So, what is the molecular formula of chlorophyll (B) ?

ⓐ $C_{55}H_{72}O_5N_4Mg$
ⓑ $C_{54}H_{70}O_6N_4Mg$
ⓒ $C_{55}H_{70}O_6N_4Mg$
ⓓ $C_{55}H_{70}O_4N_4Mg$

7 Which of the following valves direct the blood route which contains the highest percentage of carbo-aminohaemoglobin substance ?

ⓐ Mitral valve and tricuspid valve.
ⓑ Mitral valve and aortic valve.
ⓒ Pulmonary valve and aortic valve.
ⓓ Tricuspid valve and pulmonary valve.

8 * The opposite figure illustrates the blood flow in the blood vessels, what does part no. (1) represent ?



ⓐ Artery.
ⓑ Vein.
ⓒ Blood capillaries.
ⓓ Lymphatic vessel.

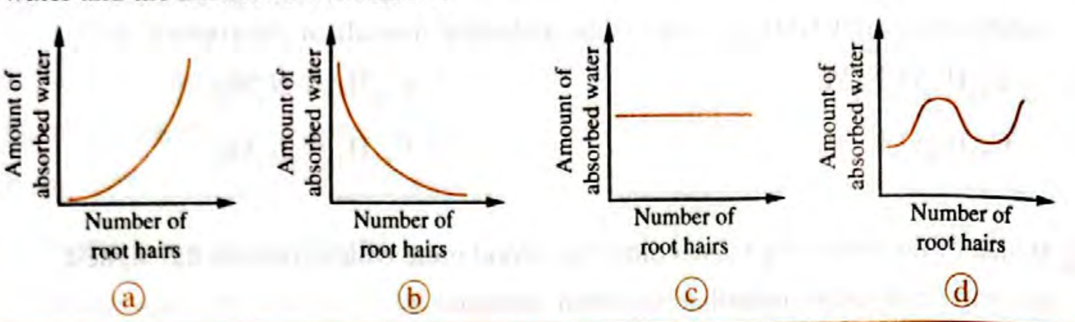
9 Which of the following statements agrees with Krebs cycle ?

ⓐ It is always related to glycolysis process to form pyruvic acid.
ⓑ It occurs inside the mitochondria.
ⓒ It is the biggest direct source to produce ATP molecules in the cell.
ⓓ Pyruvic acid is an intermediate compound in it.

10 What is the phenomenon by which the gas exchange process between the air present inside the alveolus and the blood in the two lungs takes place ?

ⓐ Osmosis.
ⓑ Diffusion.
ⓒ Active transport.
ⓓ Imbibition.

11 Which of the following graphs represents the relation between the amount of absorbed water and the number of root hairs ?



12 * Which of the following blood components can the body make benefit from them through their different stages ?

ⓐ Platelets. ⓑ WBCs. ⓒ Plasma proteins. ⓓ RBCs.

13 In a lab, the food that was collected by the scientist Mittler through the mouth of aphid insect was put in a glass tube, which digestive enzyme can digest the substances that found in this food ?

ⓐ Ptyalin. ⓑ Sucrase. ⓒ Lipase. ⓓ Lactase.

14 Which of the following digestive organs may have dysfunction in a person who is advised by the doctors not to eat more food rich in fats ?

ⓐ Pancreas. ⓑ Small intestine. ⓒ Oesophagus. ⓓ Stomach.

15 How many main blood vessels through which glucose molecule passes after its absorption from small intestine to exit from heart for starting its journey to the brain are found ?

ⓐ 4 ⓑ 6 ⓒ 8 ⓓ 10

16 What is the similarity between the chloroplasts and mitochondria ?

ⓐ The presence of DNA molecules.
ⓑ The presence of NAD^+ molecules.
ⓒ The production of sugar molecules.
ⓓ Glycolysis (splitting of glucose molecules).

17 Which of the following uses sunlight directly ?

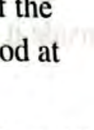
ⓐ Production of ATP molecules.

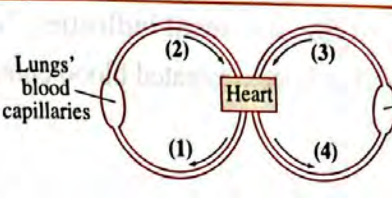
ⓑ Movement of chlorophyll molecule electrons.

ⓒ Water molecules splitting.

ⓓ $NADPH_2$ molecules formation.

18 ✻ In the opposite figure, which of the following blood vessels carry blood at high pressures ?





ⓐ (1) & (2). ⓑ (1) & (4).

ⓒ (2) & (3). ⓓ (2) & (4).

19 What is the result of narrowing the xylem tubes diameter in plant stem ?

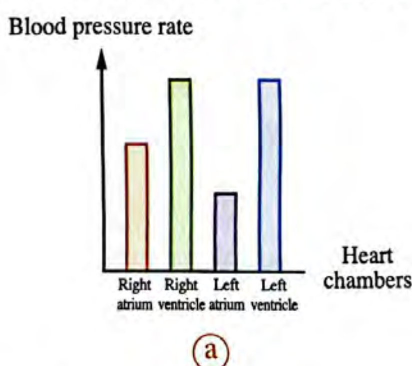
ⓐ The inability of water transfer through xylem tubes.

ⓑ The lignin precipitation inside xylem tubes' cavity.

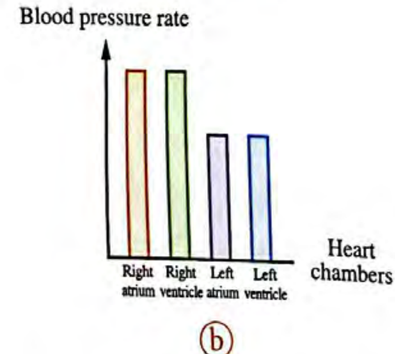
ⓒ Water and salts are transferred by imbibition phenomenon.

ⓓ Water and salts are transferred by capillarity phenomenon.

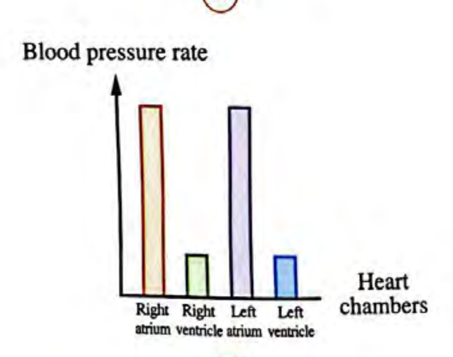
20 Which of the following graphs expresses the variation of the strength of chambers muscles contraction in the human heart ?



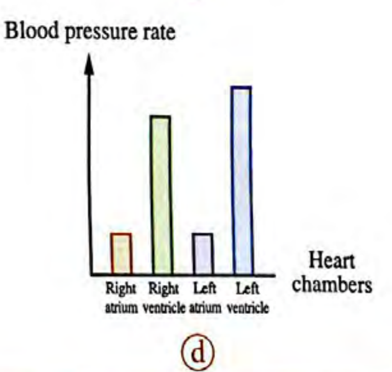
ⓐ



ⓑ



ⓒ



ⓓ

Answer the following questions (21 : 23) :

21 **What** is the least number of each molecule of NADH and $FADH_2$ at which the number of ATP molecules resulted from them is equal ?

22 **Write what this statement indicates :** "An organ in the body through which oxygenated and deoxygenated blood enter inside it and the deoxygented blood comes out from it".

23 The radioactive carbon has an important role in proving some vital processes inside the plant. **Give two different examples.**

حمل الآن

مجانا وحصريا

امتحانات رقم (3)







Model 1



Cairo Governorate
«Al-Nozha Educational Administration»

Choose the correct answer (1 : 20) :

1 Photosynthesis process wouldn't occur in the absence of ....

ⓐ chlorine. ⓑ iron.
ⓒ calcium. ⓓ sulphur.

2 All the following have an important role in immunity in the human body, except ....

ⓐ white blood corpuscles. ⓑ red blood corpuscles.
ⓒ blood platelets. ⓓ blood plasma.

3 Trachea consists of $\left(\frac{3}{4}\right)$ cartilaginous rings to ....

ⓐ filter the air that is passed through it.
ⓑ prevent the passage of foreign bodies.
ⓒ keep it permanently opened.
ⓓ allow the passage of different substances easily.

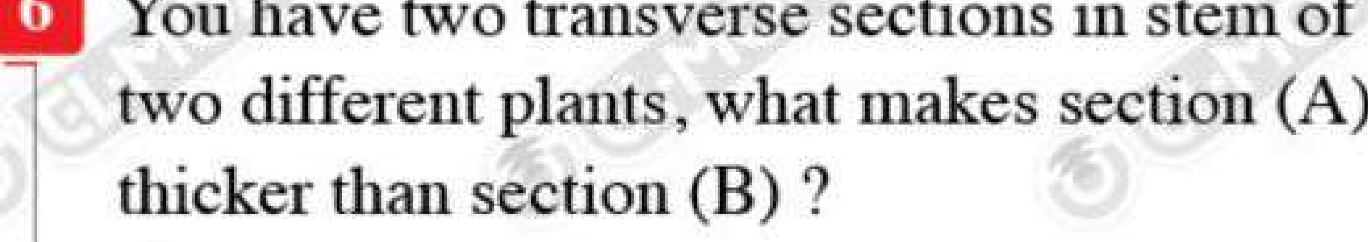
4 Predatory birds belong to ....

ⓐ omnivores. ⓑ parasites.
ⓒ saprophytes. ⓓ carnivores.

5 Which heart chamber has the most thickness wall ?

ⓐ Right atrium. ⓑ Right ventricle.
ⓒ Left atrium. ⓓ Left ventricle.

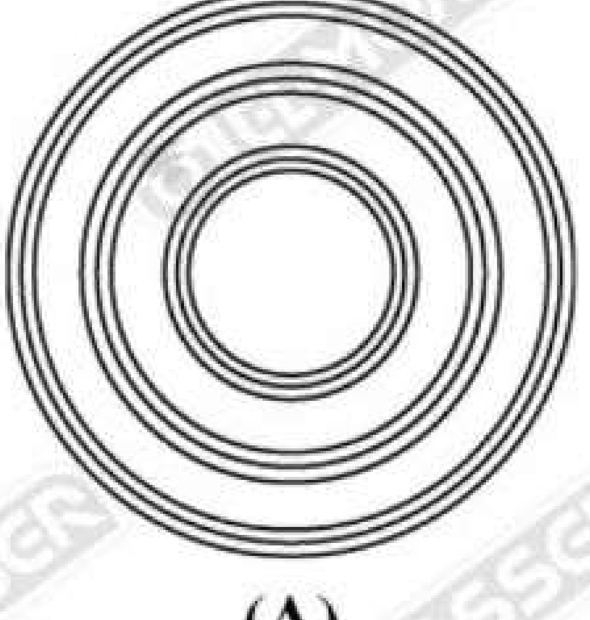
6 You have two transverse sections in stem of two different plants, what makes section (A) thicker than section (B) ?



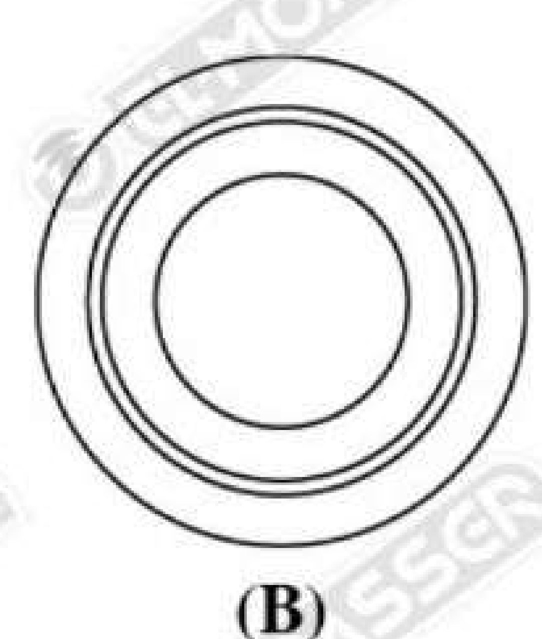
ⓐ The division of xylem cells.



ⓑ The division of phloem cells.
ⓒ The division of cambium cells.
ⓓ The division of pericycle cells.



(A)



(B)

7 Xanthophyll and carotene pigments increase the efficiency of photosynthesis process, as they ....

ⓐ are the main pigments in photosynthesis process.

ⓑ absorb large amounts of light energy.

ⓒ transfer the absorbed light into chlorophyll (A).

ⓓ have a large percentage in chloroplast.

8 How many glucose molecules are produced from six molecules of (PGAL) in photosynthesis process ?

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 4

9 What is the number of blood vessels that exit from the heart and carry the oxygenated blood ?

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 4

10 Which of the following has a role in the digestion process without secreting digestive enzymes ?

ⓐ Pancreas. ⓑ Liver. ⓒ Stomach. ⓓ Small intestine.

11 All the following take the same route, except ....

ⓐ egg white. ⓑ egg yolk. ⓒ honey. ⓓ bread.

12 During the ventricular contraction, ... valve will open.

ⓐ bicuspid ⓑ tricuspid ⓒ mitral ⓓ semi-lunar

13 The .... substance which is present in the blood and prevents its clotting.

ⓐ fibrinogen ⓑ prothrombin ⓒ heparin ⓓ thromboplastin

14 How many molecules of ATP are needed in diffusion process ?

ⓐ 0 ⓑ 1 ⓒ 2 ⓓ 3

15 Which of the following is(are) the source of energy in phloem tissue ?

ⓐ Sieve tube.
ⓑ Companion cells.
ⓒ Sieve plate.
ⓓ Cytoplasmic strands.

16 To detect the magnesium element in a leaf of green plant, which layer is magnesium abundant in ?

ⓐ Upper epidermis.
ⓑ Lower epidermis.
ⓒ Palisade tissue.
ⓓ Spongy tissue.

17 The functional unit of the respiratory system in human is the ....

ⓐ nose.
ⓑ lung.
ⓒ alveolus.
ⓓ bronchus.

18 What is the name of the process by which the absorbed food becomes a part of the body ?

ⓐ Catabolism.
ⓑ Anabolism.
ⓒ Digestion.
ⓓ Absorption.

19 The number of ATP molecules produced directly from the oxidation of 2 molecules of glucose during the stage that occurs in cytosole of the cell is ....

ⓐ 2
ⓑ 4
ⓒ 6
ⓓ 8

20 The water transfers from .... osmotic pressure.

ⓐ low
ⓑ high
ⓒ variable
ⓓ constant

Answer the following questions (21 : 23) :

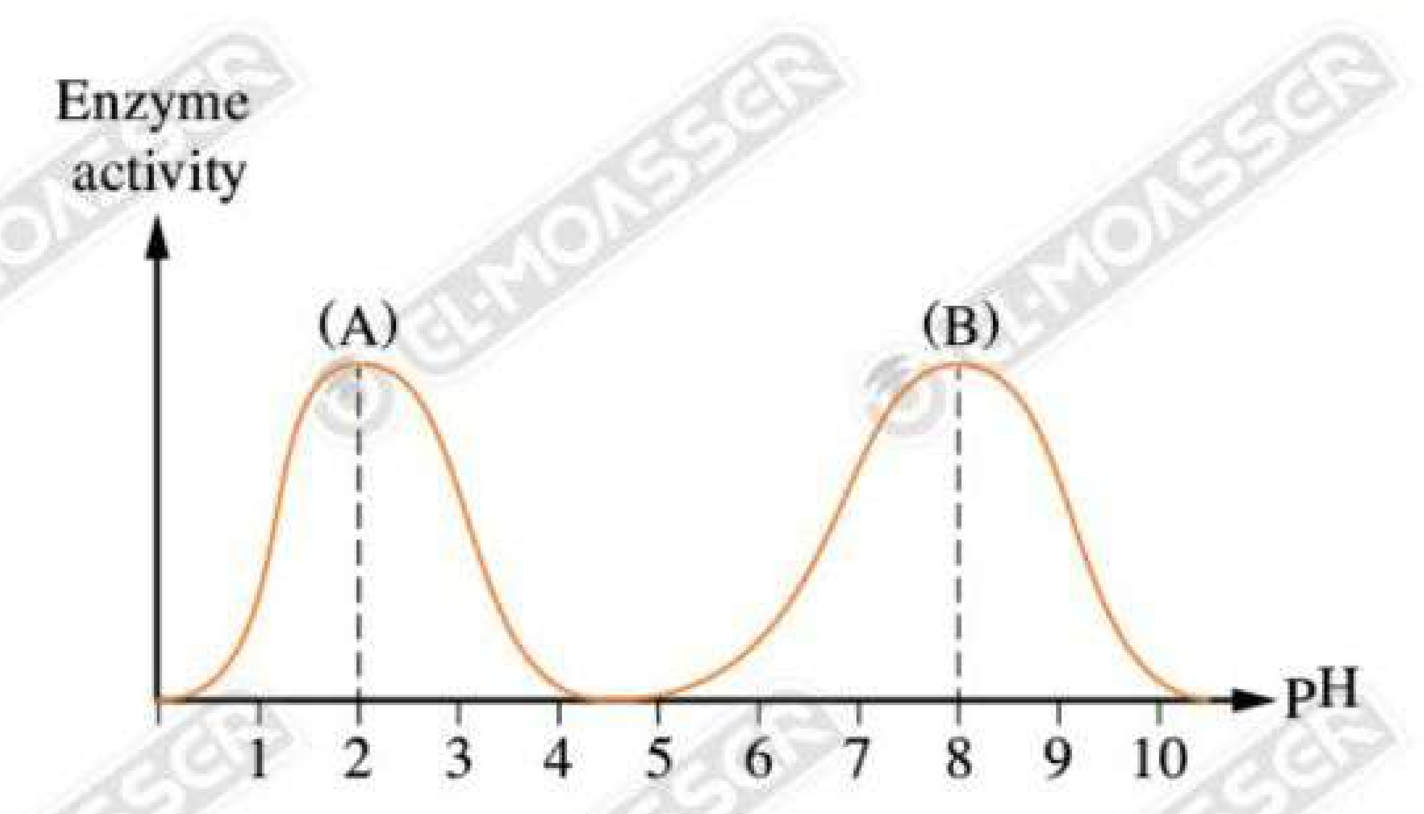
21 "Liver plays an important role in digestion and blood clotting". **Explain.**

22 "Photosynthesis and respiration are very important processes in plant and they are related to each other". **Explain.**

23 Study the opposite graph, then answer :

"Enzymes (A) and (B) work on the same substance in two different organs of the alimentary canal of mammal".

Mention the name of two enzymes, then **deduce** the route that the final products pass through during absorption.



Model 2



Cairo Governorate
«Al-Zaytun Educational Zone»

Choose the correct answer (1 : 20) :

1 .... molecule(s) is/are splitted during glucose oxidation.

ⓐ Glucose
ⓑ PGAL
ⓒ Fructose 1,6 diphosphate
ⓓ Glucose 6-phosphate

2 "The lining of small intestine contains villi and the lining of large intestine contains convolutions", "both play an important role in the absorption process". How far are these statements correct ?

ⓐ The two statements are correct.
ⓑ The two statements are wrong.
ⓒ The first statement is correct and the second statement is wrong.
ⓓ The first statement is wrong and the second statement is correct.

3 Which of the following can be used as a drug to prevent the formation of blood clots for some patients ?

ⓐ Fibrin.
ⓑ Fibrinogen.
ⓒ Heparin.
ⓓ Thrombin.

4 In which of the following parts of the human digestive system does the process that is illustrated in the following figure occur ?

Protein → **X** **Y** **Z** **L**

ⓐ Stomach and small intestine.
ⓑ Mouth and stomach.
ⓒ Oesophagus and small intestine.
ⓓ Mouth, stomach and duodenum.

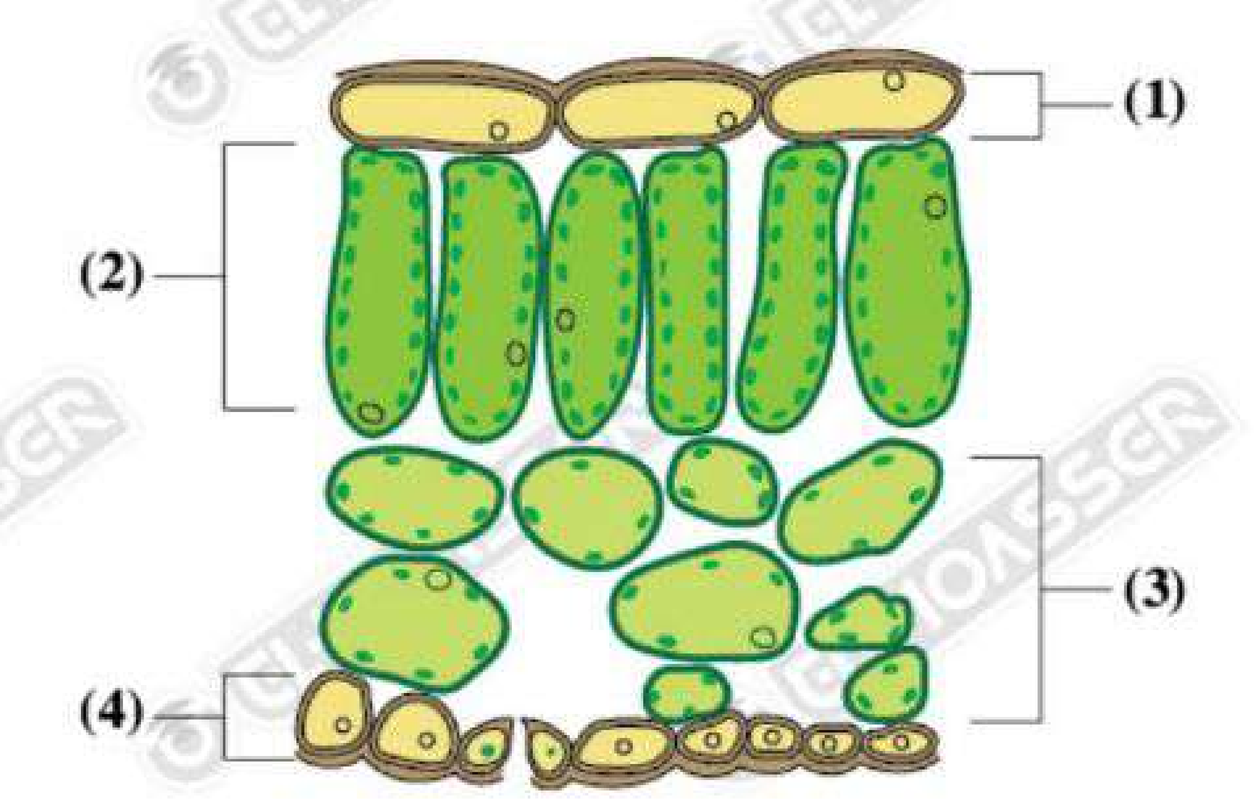
5 The amino acids enter in cellular respiration in the form of .... carbon molecules.

ⓐ one
ⓑ two
ⓒ three
ⓓ four

6 The opposite figure illustrates a part of the transverse section in a leaf of a plant, which of the following tissues is the most efficient to produce carbohydrates ?

ⓐ (1).
ⓑ (2).
ⓒ (3).

ⓓ (4).

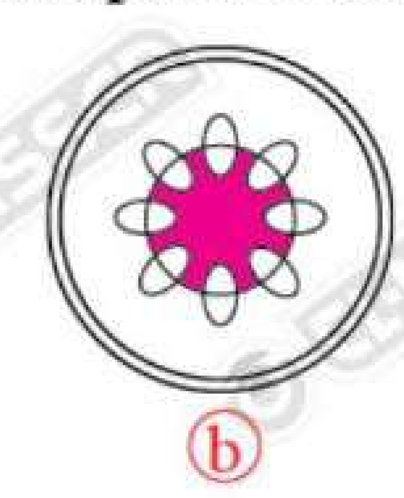


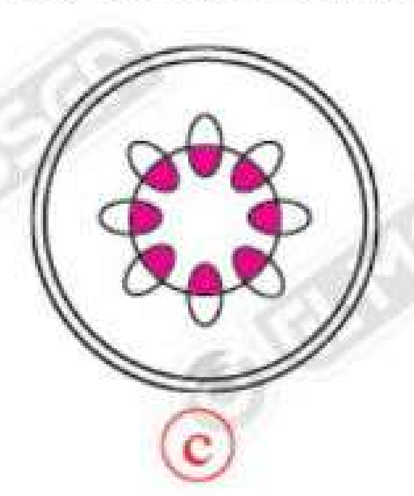
7 Which of the following digestive organs may have dysfunction in a person, where the doctors advised him not to eat more food rich in fats ?

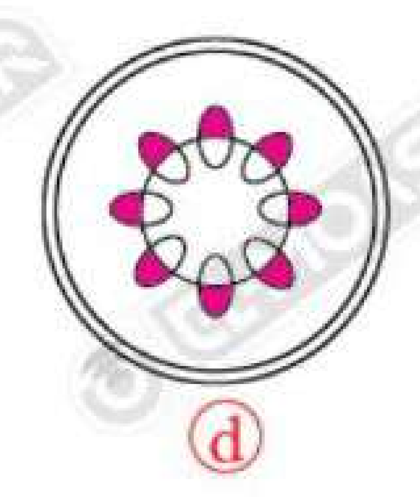
ⓐ Pancreas. ⓑ Small intestine. ⓒ Oesophagus. ⓓ Stomach.

8 A plant was put in water containing red dye for 24 hours, then it was removed and several sections were taken from the plant stem, which of the following figures illustrates that ?


ⓐ


ⓑ


ⓒ


ⓓ

9 A blood sample was taken from a blood vessel in the patient body, on examining its external appearance, it was found that its colour is light red. What is the expected place for this sample to be taken from ?

ⓐ A blood vessel near to the skin surface.

ⓑ A blood vessel buried among muscles.

ⓒ Blood capillaries near to the skin surface.

ⓓ Blood capillaries buried among muscles.

10 What is the similarity between the green plants and purple-sulphur bacteria ?

ⓐ The type of chlorophyll in both of them.

ⓑ The source of hydrogen required for CO_2 fixation in both of them.

ⓒ The dark reactions in both of them.

ⓓ The secondary products of photosynthesis process in both of them.

11 Which of the following has/have **no** immune role in the human body ?

ⓐ Red blood cells. ⓑ White blood cells.

ⓒ Blood platelets. ⓓ Blood plasma.

12 Which of the following food substances will **not** be transported by normal rate in the blood circulation if the lacteal vessel is blocked ?

ⓐ Amino acids. ⓑ Glucose. ⓒ Fats. ⓓ Fructose.

13 All the following enzymes produce simple and insymetric molecules, except ....

ⓐ sucrase. ⓑ lactase.
ⓒ lipase. ⓓ amylase.

14 Which of the following elements is less used by plant ?

ⓐ Phosphorus. ⓑ Nitrogen.
ⓒ Iodine. ⓓ Sulphur.

15 The root pressure is stopped when ....

ⓐ water comes out by exudation.
ⓑ water transports of root cells by imbibition.
ⓒ the atmosphere pressure is more than two.
ⓓ it equals to water column pressure in xylem vessel.

16 In the opposite figures, in which tube does the complete digestion occur ?

(1)	(2)	(3)
Amylase + H_2O + Starch, pH = 7.4	H_2O+Fats + Lipase + Bile, pH = 8	Fats + H_2O + Bile, pH = 8

ⓐ (1) and (3). ⓑ (3) only.
ⓒ (1) and (2). ⓓ (2) only.

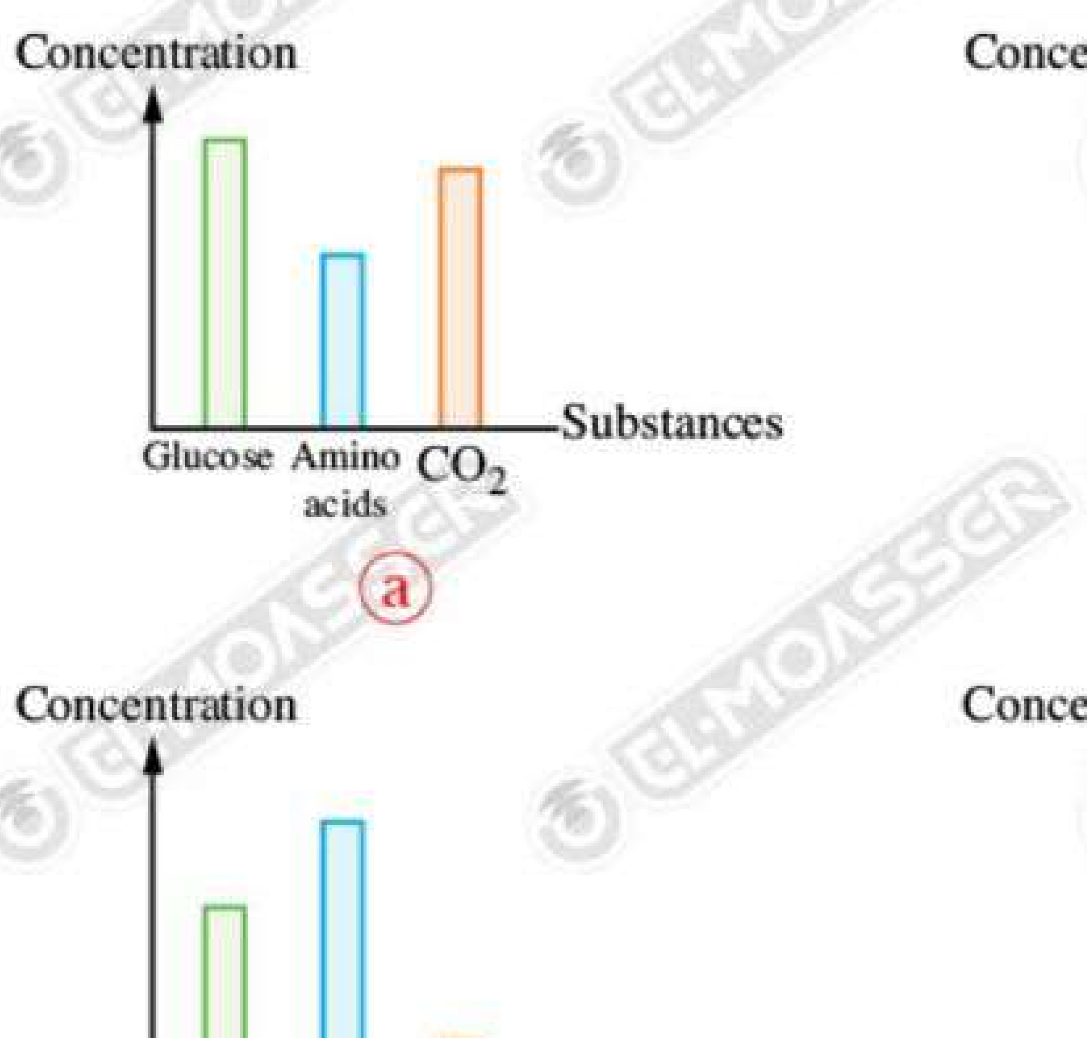
17 Which of the following substances does **not** move through the transport system in plants ?

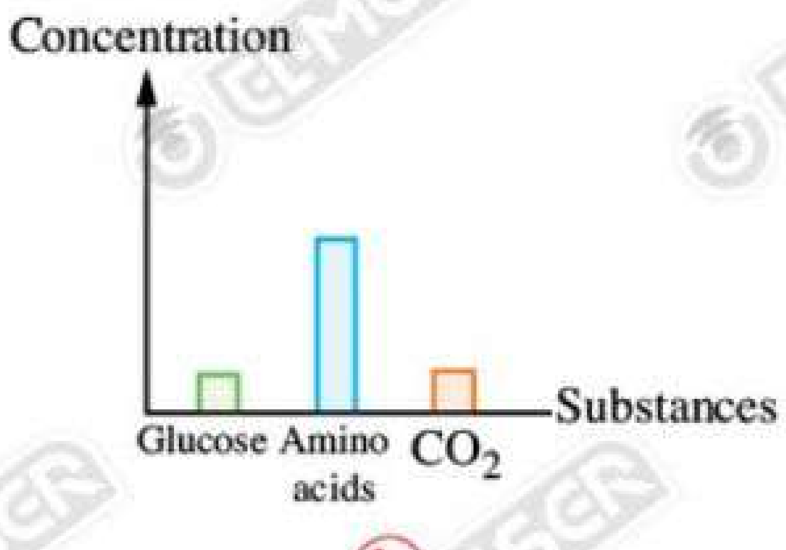
ⓐ Water. ⓑ Glucose.
ⓒ Cellulose. ⓓ Magnesium.

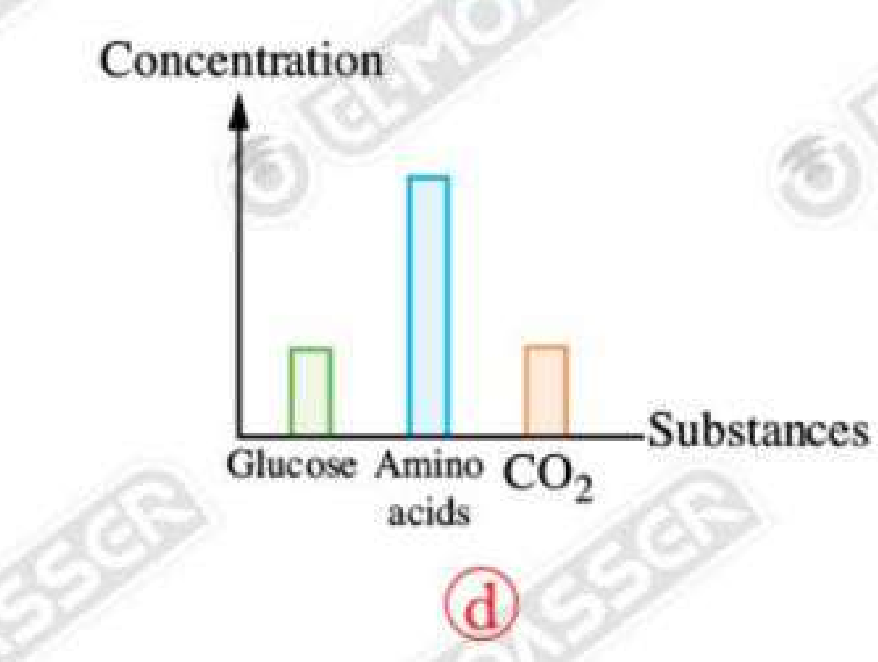
18 What are the main sites for gas exchange in plants ?

ⓐ Leaves. ⓑ Lenticels.
ⓒ Stomata. ⓓ Roots.

19 Which of the following graphs describes the substances concentration in the hepatic portal vein ?





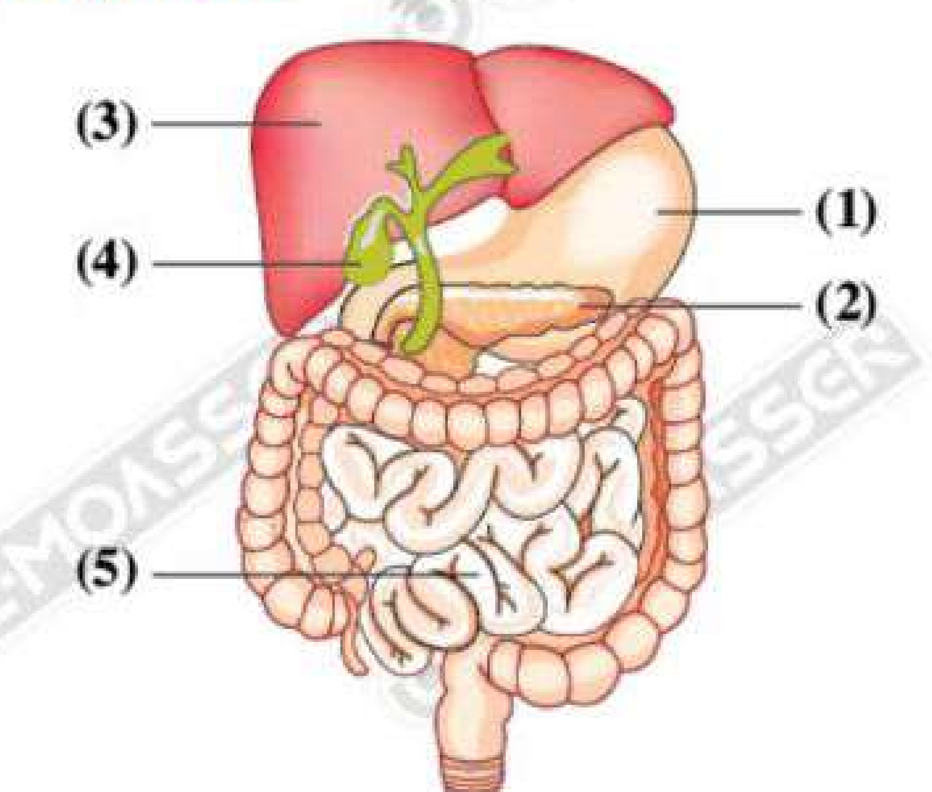


20 The highest blood pressure is in ....

(a) pulmnory artery.
(b) superior vena cava.
(c) aorta artery.
(d) inferior vena cava.

Answer the following questions (21 : 23) :

21 **The following figure shows a part of the human digestive system :**



(a) Write the number and name of the organ that is responsible for the adjustment of the pH value in organ no. (5).



(b) Why doesn't the juice in no. (1) affect it ?



22 "The vascular bundle in each of the leaf and stem of the plant is similar". **How far is this statement correct ? With explanation.**

23 **Give reason for :** there are millions of alveoli in one lung.

Model 3



Choose the correct answer (1 : 20) :

1 The cilia that are present in the trachea work on pushing the mucus with the tiny foreign particles towards the ....

(a) nose. (b) epiglottis. (c) pharynx. (d) two lungs.

2 If you know that *Bilharzia* worms live and feed inside the human hepatic portal vein. So, which of the following do these worms belong to ?

(a) Saprophytes. (b) Autotrophs. (c) Carnivores. (d) Parasites.

3 What is the difference between the structure of ATP molecule and ADP molecule ?

(a) Type of sugar. (b) Type of nitrogenous base.
(c) Number of phosphate groups. (d) Number of carbon atoms.

4 Which of the following tissues is present in the plant stem and **isn't** present in the leaf ?

(a) Xylem. (b) Phloem. (c) Cambium. (d) Epidermis.

5 The blood that reaches the brain cells leaves the heart from the ....

(a) left atrium. (b) right atrium. (c) left ventricle. (d) right ventricle.

6 The digestion process of food aims to its change into substances which can be ....

(a) swallowed. (b) excreted. (c) defecated. (d) absorbed.

7 The pulmonary artery contains ....

(a) a bicuspid valve. (b) blood with high pressure.
(c) blood moving towards the heart. (d) oxygenated blood.

8 Which of the following food substances have the ability to pass through the plasma membranes of the cells ?

(a) Starch molecules. (b) Calcium salts.
(c) Lipids. (d) Protein molecules.

9 What is the number of ATP molecules that are produced during the glycolysis of 4 molecules of glucose ?

ⓐ 4 ⓑ 8 ⓒ 12 ⓓ 16

10 The backflow of the gastric acid to the oesophagus is known as "Gastro-oesophageal reflux" and it occurs due to a defect in the sphincter muscle located between the ....

ⓐ oesophagus and stomach.
ⓑ stomach and small intestine.
ⓒ duodenum and ileum.
ⓓ ileum and large intestine.

11 Which of the following blood vessels contains the highest level of glucose after having a balanced meal ?

ⓐ Aorta.
ⓑ Pulmonary artery.
ⓒ Hepatic portal vein.
ⓓ Hepatic vein.

12 Which of the following enzymes **doesn't** digest the same type of carbohydrates ?

ⓐ Maltase. ⓑ Amylase. ⓒ Sucrase. ⓓ Lactase.

13 What is the phenomenon which explains the reason why the vegetables gain the salty taste when being cooked ?

ⓐ Imbibition.
ⓑ Selective permeability.
ⓒ Active transport.
ⓓ Diffusion.

14 On staining a transverse section of a dicot plant stem with iodine solution, which of the following appears with dark blue colour ?

ⓐ Xylem vessels.
ⓑ Companion cells of phloem.
ⓒ Cambium.
ⓓ The innermost row of cells in cortex.

15 Which of the following **doesn't/don't** affect the rate and the depth of respiration ?

ⓐ Physical exercises.
ⓑ Ratio of each of oxygen and carbon dioxide in the atmospheric air.
ⓒ Respiratory enzymes.
ⓓ Psychological state.

16 How many times does the blood pass through the heart during its passage from the two kidneys till reaching the aorta ?

ⓐ One time. ⓑ Two times.
ⓒ Four times. ⓓ More than four times.

17 Which of the following leads to the formation of a blood clot ?

ⓐ Shortage of vitamin (K).
ⓑ Shortage of calcium ions in blood.
ⓒ Malformation of thrombin substance in its appropriate time.
ⓓ Breaking down of blood platelets inside the blood vessel.

18 What is the number of phosphoglyceraldehyde molecules that are needed to form a glucose molecule ?

ⓐ 2 ⓑ 3 ⓒ 4 ⓓ 5

19 Which of the following tissues have the ability to divide ?

ⓐ Tracheids. ⓑ Xylem vessels.
ⓒ Sieve tubes. ⓓ Companion cells.

20 When exposing a plant to a long period of darkness, which of the following its releasing rate from the leaf increases ?

ⓐ CO_2 ⓑ O_2 ⓒ N_2 ⓓ H_2O

Answer the following questions (21 : 23) :

21 **What is the difference between :** the villi and convolutions (concerning the site and function) ?



22 "Liver is called the body's gate to food, while spleen is called the body's grave". **Explain.**

23 **What happens :** in the experiment that proves the respiration in plant when the bell jar isn't covered by a black cloth ?

Model 4



Choose the correct answer (1 : 20) :

1 The plants which have high osmotic pressure are ....

(a) green plants and plants that live in fresh water.

(b) forest and desert plants.

(c) desert plants and fresh water plants.

(d) desert plants and salt water plants.

2 Which of the following is found in normal human blood plasma ?

(a) Fibrin. (b) Thromboplastin. (c) Thrombin. (d) Fibrinogen.

3 Substances that are **not** present in the food of the aphid when examined are ....

(a) amino acids. (b) fatty acids. (c) sucrose. (d) water.

4 The blood vessel that contains the highest percentage of fat after the completion of the digestion process is ....

(a) superior vena cava. (b) inferior vena cava.

(c) hepatic portal vein. (d) hepatic vein.

5 Which biological processes do **not** need ATP ?

(a) Aerobic respiration.

(b) Glycolysis.

(c) Anaerobic respiration.

(d) Water splitting in the process of photosynthesis.

6 A plant whose leaves are devoid of cutin is ....

(a) beans. (b) corn. (c) *Elodea*. (d) cactus.

7 The substance that forms most of lymph is ....

(a) water. (b) fat.

(c) proteins. (d) monosaccharides.

8 The root pressure stops when ....

ⓐ water comes out of the stem by exudation.
ⓑ water is transported to the root cells by imbibition.
ⓒ it is more than 2 atmospheres.
ⓓ it is equal to the pressure of the water column in the xylem vessels.

9 Which of the following does **not** occur during the dark reactions ?

ⓐ CO_2 fixation.
ⓑ NADPH oxidation.
ⓒ Oxidative phosphorylation.
ⓓ ATP consuming.

10 The tissue responsible for aeration in plant leaves is ....

ⓐ palisade tissue.
ⓑ spongy tissue.
ⓒ collenchyma tissue.
ⓓ vascular tissue.

11 Which of the following reactions need carbon dioxide ?

ⓐ Light reactions only.
ⓑ Dark light reactions only.
ⓒ Light and dark reactions.
ⓓ Glycolysis reactions.

12 The food substance that can be digested in the acidic and alkaline media is ....

ⓐ rice.
ⓑ potatoes.
ⓒ meat.
ⓓ fat.

13 The formation of glucose 6-phosphate is accompanied by ....

ⓐ energy production.
ⓑ energy consumption.
ⓒ CO_2 production.
ⓓ oxygen consumption.

14 .... is found in a high percentage in the pulmonary artery.

ⓐ Oxyhaemoglobin
ⓑ Carbo-amino haemoglobin
ⓒ Haemoglobin
ⓓ Haemoglobin and oxyhaemoglobin

15 The walls of the ends of the blood vessels spread among the liver tissue cells are formed of ....

ⓐ epithelial layer.
ⓑ two layers of epithelial and muscle.
ⓒ muscular and connective layers.
ⓓ muscle layer.

16 .... have no role in the arrival of oxygen to the cells of the stems of herbal plants.

(a) Phloem passages (b) Stomata (c) Lenticels (d) The roots

17 The number of .... increases in the blood when a person has appendix inflammation.

(a) enzymes (b) platelets (c) WBCs (d) RBSc

18 Which of the following has a role in the digestion process without the secretion of digestive enzymes ?

(a) Liver. (b) Pancreas. (c) Small intestine. (d) Stomach.

19 Which is needed for anaerobic cellular respiration to occur ?

(a) O_2 (b) CO_2 (c) Certain enzymes. (d) FAD

20 Which of the following enzymes does **not** produce a substance that is absorbed into the body ?

(a) Maltase. (b) Lactase. (c) Enterokinase. (d) Sucrase.

Answer the following questions (21 : 24) :

21 **What happens when :** a person breathes polluted air with dust ?

22 **Compare between :**

Photosynthetic phosphorylation and oxidative phosphorylation, **in terms of :** the location.



23 **Explain :**

The root hairs of the bean plant did not disappear, despite their continuous penetration into the soil.



24 **What** is the importance of HCl acid in the digestion process ?



Model 5



Alexandria Governorate
«Middle Educational Zone»

Choose the correct answer (1 : 20) :

1 Which of the following substances takes a different pathway depending upon its absorption ?

ⓐ Egg white. ⓑ Butter. ⓒ Oil. ⓓ Fatty acids.

2 Which of the following contains a high percentage of starch grains ?

ⓐ Palisade tissue. ⓑ Xylem tissue. ⓒ Phloem tissue. ⓓ Spongy tissue.

3 The amount of energy that is released from anaerobic respiration in muscles less than that released from aerobic respiration, because of the ....

ⓐ consumption of energy to form CO_2

ⓑ presence of energy stored in lactic acid.

ⓒ consumption of energy to form O_2

ⓓ presence of energy stored in pyruvic acid.

4 Electron transport chain is described by ....

ⓐ oxidative phosphorylation.

ⓑ exothermic reactions.

ⓒ oxidation and reduction reactions.

ⓓ molecule's carriers that change by changing enzymes.

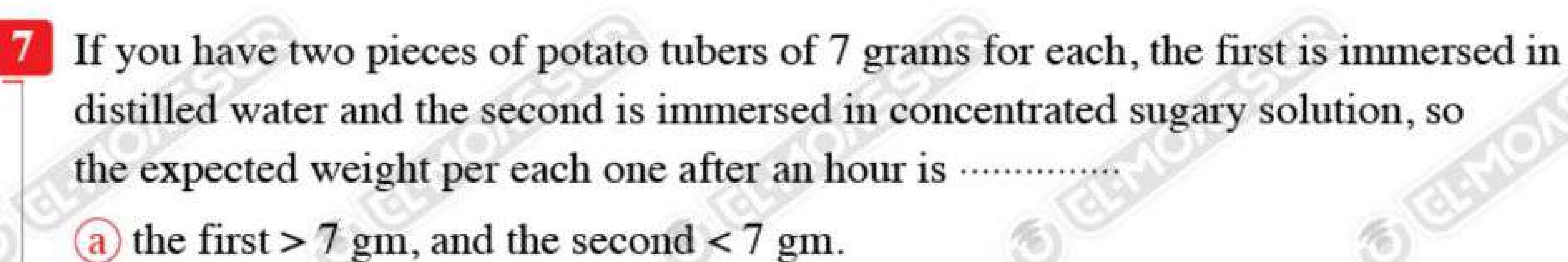
5 If the lacteal vessels in the villi are blocked, so which of the following substances **won't** join the blood circulation normally ?

ⓐ Amino acids. ⓑ Glucose. ⓒ Fats. ⓓ Starch.

6 The rate of photosynthesis process in green plants is **not** affected by ....

ⓐ the site of stomata. ⓑ the number of plastids.

ⓒ the concentration of chlorophyll. ⓓ thickness of mesophyll tissue.



7 If you have two pieces of potato tubers of 7 grams for each, the first is immersed in distilled water and the second is immersed in concentrated sugary solution, so the expected weight per each one after an hour is ....

- (a) the first > 7 gm, and the second < 7 gm.
- (b) the first < 7 gm, and the second > 7 gm.
- (c) the first and the second $= 7$ gm.
- (d) the first and the second < 7 gm.

8 If you know that Clover plant is the host of Cuscuta (Dodders) plant, so what do you conclude from this information ?

- (a) Cuscuta plant has true roots.
- (b) Clover plant is free from chlorophyll.
- (c) Cuscuta plant doesn't have true roots.
- (d) Clover plant doesn't have true roots.

9 The cilia in trachea push the mucus towards ....

- (a) lungs.
- (b) pharynx.
- (c) epiglottis.
- (d) nose.

10 Vegetables gain salty taste during cooking by .... phenomenon.

- (a) diffusion
- (b) imbibition
- (c) active transport
- (d) selective permeability

11 The blood vessels that connect between veins and arteries are characterized by ....

- (a) containing internal valves.
- (b) that their walls consist of several cellular layers.
- (c) that their walls consist of connective tissue.
- (d) that their walls contain tiny pores.

12 Which of the following increases the active transport in phloem ?

- (a) Temperature and oxygen decrease.
- (b) Temperature decreases, but oxygen increases.
- (c) Temperature and oxygen increase.
- (d) Temperature increases, but oxygen decreases.

13 On contraction of ventricles, so the sound of heartbeats will be ....

ⓐ sharp and long.
ⓑ sharp and short.
ⓒ rough and long.
ⓓ rough and short.

14 The least blood pressure is in ....

ⓐ veins.
ⓑ blood capillaries.
ⓒ arteries near the heart.
ⓓ both (a) and (b).

15 Passage of water on cutting a stem near the soil surface is called ....

ⓐ imbibition.
ⓑ capillarity.
ⓒ cohesive.
ⓓ exudation.

16 The muscle that is found on the two sides of anus is ....

ⓐ sphincter voluntary muscle.
ⓑ sphincter involuntary muscle.
ⓒ circular sphincter involuntary muscle.
ⓓ all the previous.

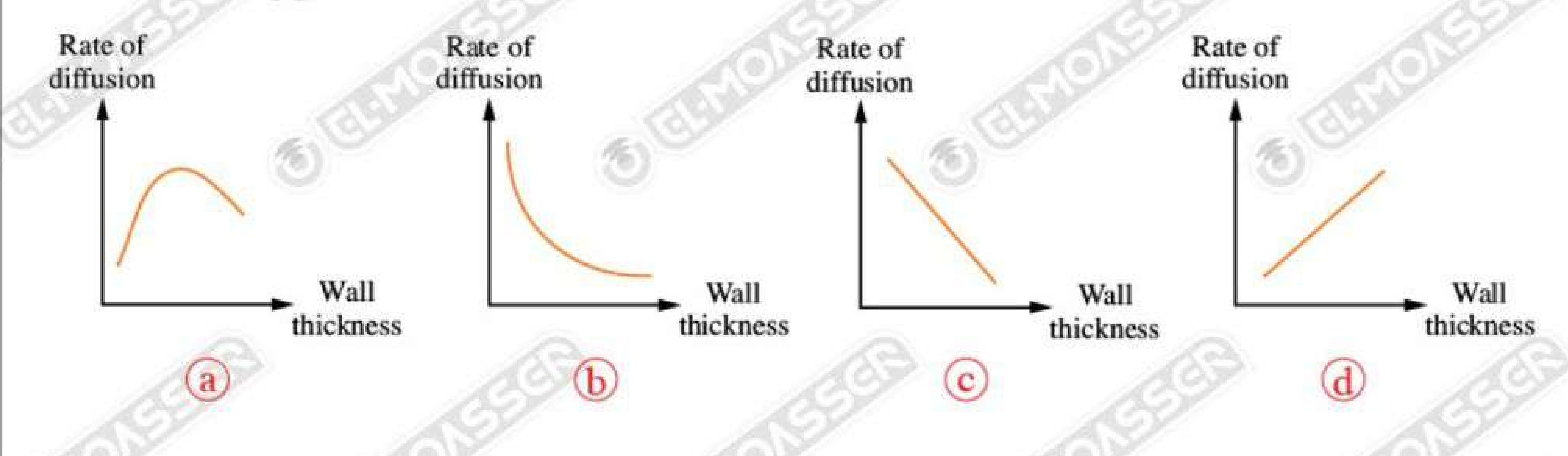
17 Trypsinogen is changed into .... enzyme in duodenum.

ⓐ amylase
ⓑ lipase
ⓒ entrokinase
ⓓ trypsin

18 Which valves determine the path of oxygenated blood through heart ?

ⓐ Mitral valve and aortic valve.
ⓑ Mitral valve and tricuspid valve.
ⓒ Pulmonary valve and aortic valve.
ⓓ Pulmonary valve and tricuspid valve.

19 Which of the following represents the relation between the thickness of alveolus and the rate of oxygen diffusion ?



20 Which of the following is **not** suitable with the function of root hairs ?

(a) Absence of cutin layer.

(b) Their large numbers and their protrusion outwards.

(c) Their cellulose walls are thin.

(d) The presence of large numbers of mitochondria.

Answer the following questions (21 : 23) :

21 "Water transfers from roots to leaves as the following : cortex - stomata - mesophyll tissue - root hair - xylem". **How far is this statement correct ? With explanation.**

22 **Give reason for :** the electron transport chain doesn't occur in cytosole.

23 **Give reason for :** liver is called the food's gate.

Model 6



Sharkia Governorate
«10th of Ramadan Educational Directorate»

Choose the correct answer (1 : 20) :

1 Which one of these living organisms produces complex organic materials ?

ⓐ Human. ⓑ Plant. ⓒ Animal. ⓓ Bacteria.

2 The blood reaches the brain cells, leaves the heart from the ....

ⓐ left atrium. ⓑ right atrium. ⓒ left ventricle. ⓓ right ventricle.

3 The main organic food substance(s) which is(are) transported by phloem is(are) ....

ⓐ water. ⓑ carbohydrates. ⓒ minerals. ⓓ gases.

4 The number of oxygen molecules resulted from the photosynthesis for 12 molecules of water is ....

ⓐ 2 ⓑ 6 ⓒ 9 ⓓ 12

5 In photosynthesis process, starch is produced in ....

ⓐ green plastids. ⓑ coloured plastids. ⓒ cristae. ⓓ grana.

6 ATP loses one phosphate group when glucose changes into ....

ⓐ acetyl. ⓑ glucose 6-phosphate.
ⓒ pyruvic acid. ⓓ fructose 6-phosphate.

7 Which of the following causes the presence of water column inside xylem vessels held ?

ⓐ The presence of cellulose. ⓑ The presence of adhesion force.
ⓒ The presence of lignin. ⓓ The presence of cohesion force.

8 The fatty acids enter in the cellular respiration in form of .... molecules.

ⓐ 6C ⓑ 5C ⓒ 3C ⓓ 2C

9 The pulmonary artery contains ....

ⓐ blood with high pressure. ⓑ oxygenated blood.
ⓒ blood moving towards the heart. ⓓ bicuspid valve.

10 The main site for gaseous exchange in plant is the ....

(a) leaves. (b) lenticels. (c) stomata. (d) roots.

11 Which of the following blood components, body can benefit from it until the ending ?

(a) White blood cells. (b) Red blood cells.
(c) Plasma. (d) Blood platelets.

12 Which of the following does **not** occur during the dark reaction ?

(a) CO_2 fixation. (b) $NADPH_2$ oxidation
(c) Production of ATP (d) Consumption of ATP

13 Lack of magnesium (Mg) element affects ....

(a) respiration. (b) sensation.
(c) photosynthesis. (d) transportation.

14 The first blood vessel in which glucose percentage rises up after eating food is ....

(a) aorta. (b) hepatic portal vein.
(c) hepatic vein. (d) pulmonary artery.

15 Deficiency of oxygen slows down the movement of cytoplasm inside .... tissue.

(a) pericyclic (b) xylem (c) phloem (d) marrow

16 When pyruvic acid is converted to lactic acid, the process that occurs to NADH is ....

(a) reduction. (b) fusion.
(c) oxidation. (d) decomposition.

17 Which of these substances are present in blood plasma ?

(a) Amino acids and CO_2 (b) Oxygen and glucose.
(c) Glucose and vitamins. (d) Urea and oxygen.

18 The final receptor in electron transport chain is ....

(a) N_2 (b) H_2 (c) O_2 (d) H_2O

19 Proteins are completely digested in ....

ⓐ stomach. ⓑ small intestine. ⓒ mouth. ⓓ large intestine.

20 Plants absorb water from soil by ....

ⓐ diffusion. ⓑ osmosis.

ⓒ imbibition. ⓓ active transport.

Answer the following questions (21 : 24) :

21 **What happen when** the absence of valves from limbs veins ?

22 **What happen when** the removal of stomach from some humans ?

23 **Give reason for :**

The presence of millions of alveoli in one lung.

24 **Give reason for :**

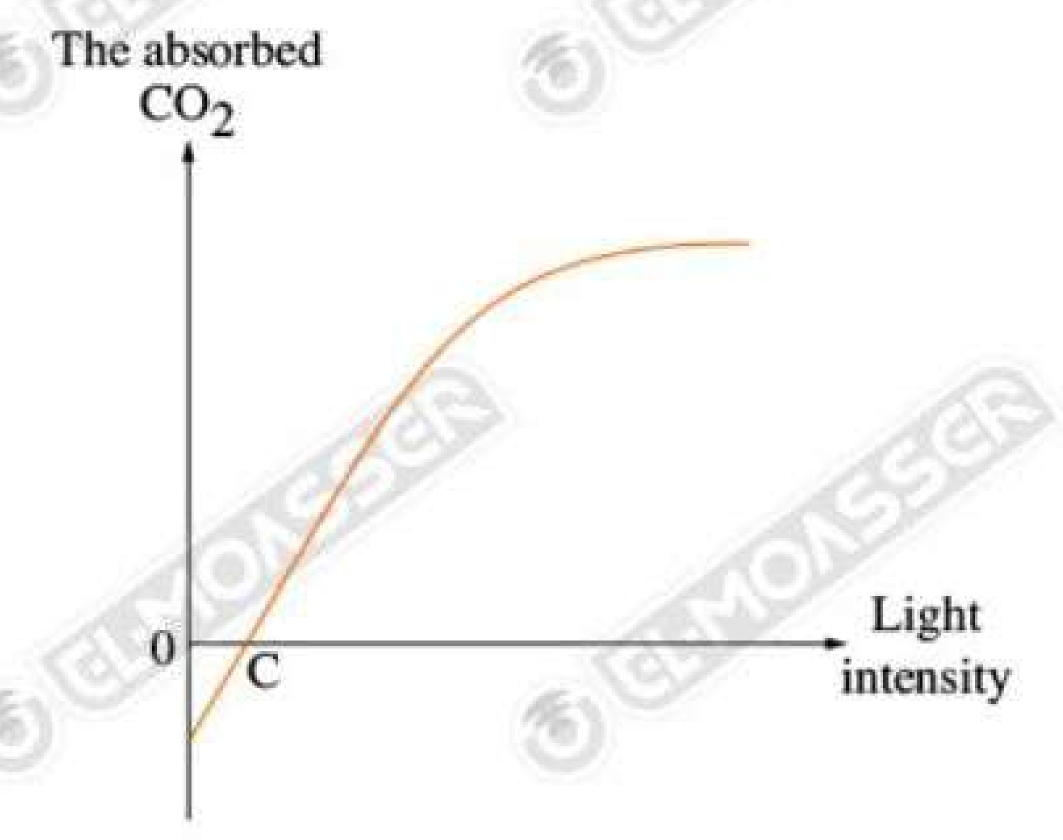
Orobanche plant is a parasite, although it is a green plant.

Model 7

Ismailia Governorate
«Science Inspection»

Choose the correct answer (1 : 20) :

1 When exposing a green plant to suitable conditions (temperature, sufficient amount of CO_2 and light intensity in ascending order). The results appeared as in the opposite figure, when the light intensity was less than C, this means that ....



ⓐ the absorbed amount of CO_2 is more than the plant need.

ⓑ the plant gets CO_2 by diffusion.

ⓒ the plant performs cellular respiration.

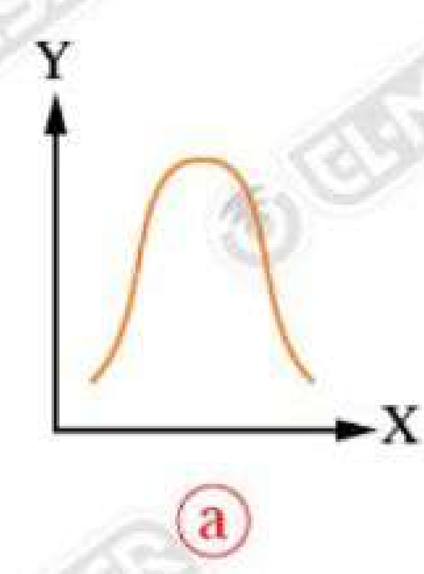
ⓓ the temperature is not suitable for photosynthesis.

2 Which of the following enzymes **doesn't** digest the same type of carbohydrate ?

ⓐ Maltase. ⓑ Amylase.

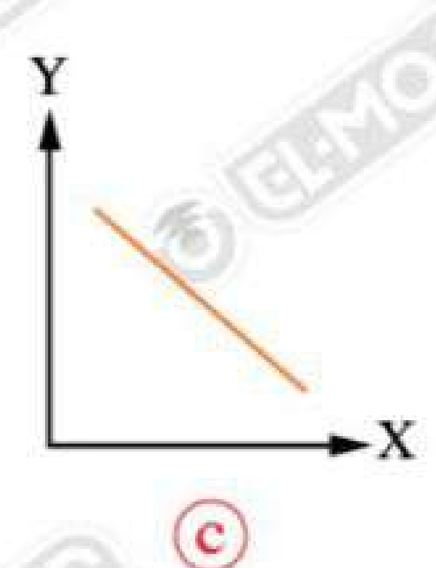
ⓒ Sucrase. ⓓ Lactase.

3 Which of the following graphs shows the relation between the rate of the sap ascent in plant (Y) and the rate of photosynthesis (X) ?

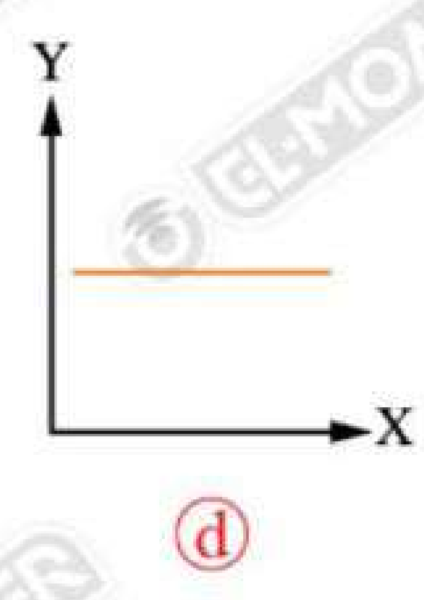


ⓐ

ⓑ



ⓒ



ⓓ

4 Which of the following happens during ventricles relaxation ?

ⓐ Opening of semi-lunar valves.

ⓑ Pressure of aorta becomes higher than that of the two ventricles.

ⓒ Opening of atrio-ventricular valves.

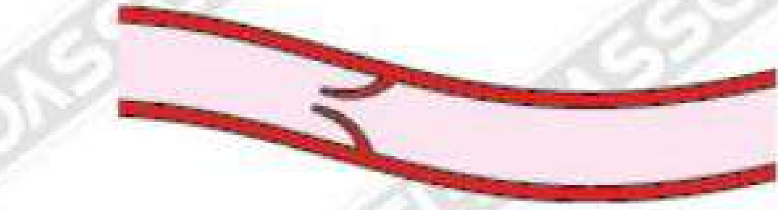
ⓓ Pressure of left atrium becomes higher than that of the right atrium.



5 Which of the following explains the reason for using the carbon isotope instead of using the oxygen isotope in Calvin's experiment ?

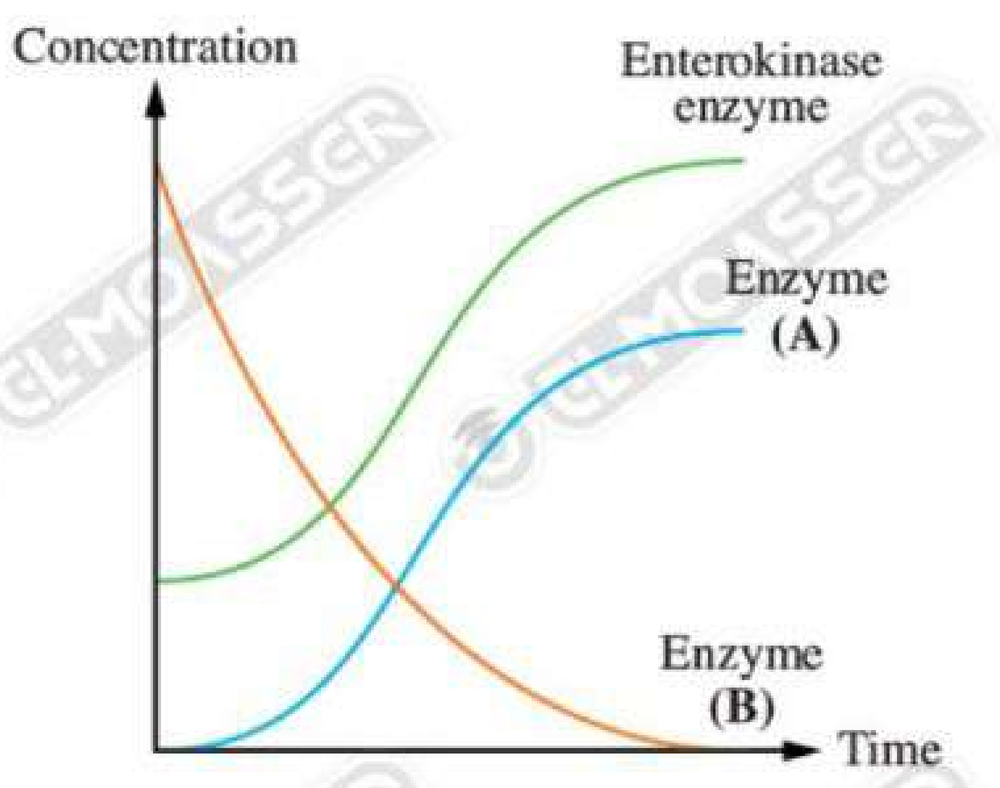
ⓐ The source of the evolved oxygen is water.
ⓑ The raw materials that form the phosphoglyceraldehyde are found in CO_2 only.
ⓒ Oxygen enters in the structure of all the photosynthesis products.
ⓓ The carbon isotope is easily traced than that of oxygen.

6 In the opposite figure :
What is the direction of blood in the opposite blood vessel ?



ⓐ From foot to heart.
ⓑ From liver to intestine.
ⓒ From heart to kidney.
ⓓ From heart to the two lungs.

7 The opposite graph shows the relation among 3 enzymes that share in digesting a food substance, what is/are the final product(s) of digesting the food substance which is/are affected by enzyme (A) ?



ⓐ Disaccharide.
ⓑ Amino acids.
ⓒ Polypeptides.
ⓓ Fatty acids.

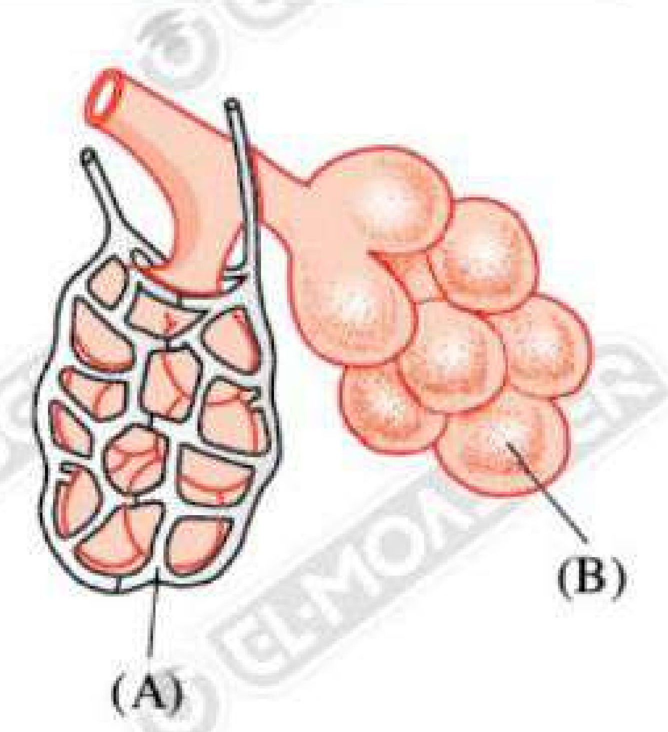
8 The purpose from the conversion of milk in the infants stomach into coagulated substance is to make benefit from the .... that is(are) present in milk.

ⓐ sugar
ⓑ protein
ⓒ mineral salts
ⓓ water

9 What is the ratio of the energy released from the aerobic respiration to that of the anaerobic respiration for one glucose molecule ?

ⓐ 1 : 1
ⓑ 19 : 1
ⓒ 38 : 1
ⓓ 19 : 2

10 In the opposite figure, the structure (B) is surrounded by a network of structure (A), and this is to ease the transfer of ....



ⓐ O_2 from (A) to (B).
ⓑ CO_2 from (B) to (A).
ⓒ H_2O from (B) to (A).
ⓓ O_2 from (B) to (A).

11 Which of the following factors helps in accomplishing the cultivation of a plant in a pot after keeping it in a glass of water for two days ?

(a) Leaving the plant exposed to the sun for a longer period of time.

(b) Planting its roots in a moist soil.

(c) Planting its roots in a dry soil.

(d) Covering the vegetative system with a bag before its planting.

12 The opposite table shows some changes that happen in the blood components concentration during its passage through an organ, which of the following organs does this blood come out from ?

Blood components	Change in concentration
CO_2	Increases
Glucose	Increases
O_2	Decreases
Amino acids	Increases

(a) Brain. (b) Kidney.

(c) Small intestine. (d) Liver.

13 Which of the following is considered the first receiver for the nicotine for a smoker ?

(a) Left atrium. (b) Left ventricle.

(c) Right ventricle. (d) Right atrium.

14 In electron transport chain, the electron energy is used in the production of ....

(a) hydrogen molecules. (b) water molecules.

(c) NAD^+ molecules. (d) adenosine triphosphate molecule.

15 The correct arrangement of stages through which fats pass, until its components are used in producing energy in the cell, is ....

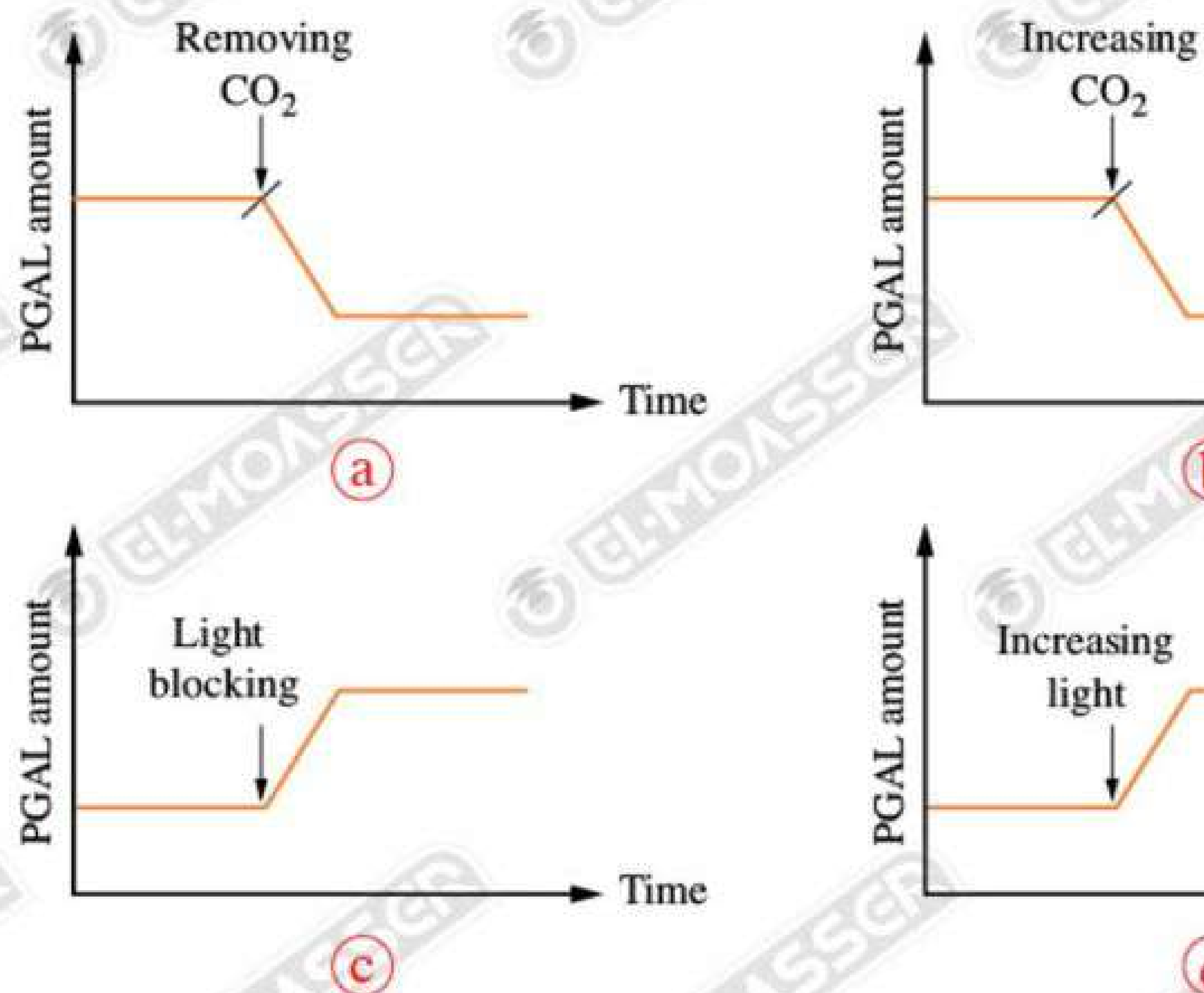
(a) catabolism / absorption into blood / entering the cell / hydrolysis.

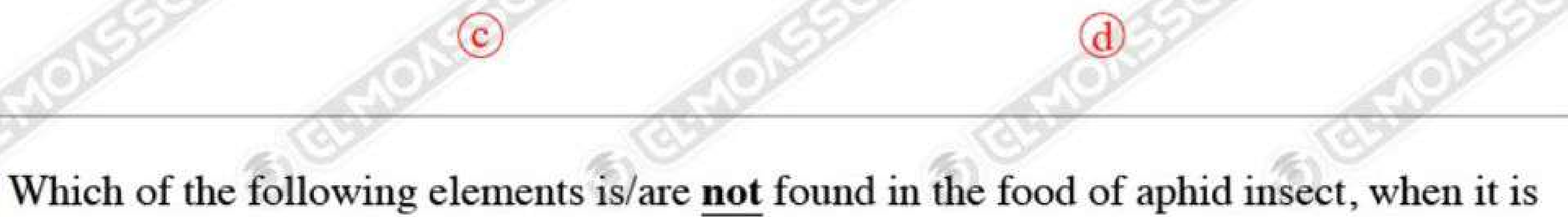
(b) entering the cell / hydrolysis / absorption into the lymph / catabolism.

(c) digestion / absorption into blood / entering the cell / catabolism.

(d) hydrolysis / absorption into the lymph / entering the cell / catabolism.

16 Which of the following graphs represents the change that occurs in the amount of one of the affecting factors on the produced substances from the reactions that occur in the stroma ?





17 Which of the following elements is/are **not** found in the food of aphid insect, when it is examined ?

(a) Amino acids. (b) Fatty acids. (c) Sucrose. (d) Water.

18 Sino-atrial node beats from 90 : 110 beat/minute, but .... regulates its rate to 70 beat/minute.

(a) sympathetic nerve
(b) His fibers
(c) atrio-ventricular node
(d) parasympathetic nerve

19 What is the coenzyme that receives hydrogen in each of the cytosole and mitochondria ?

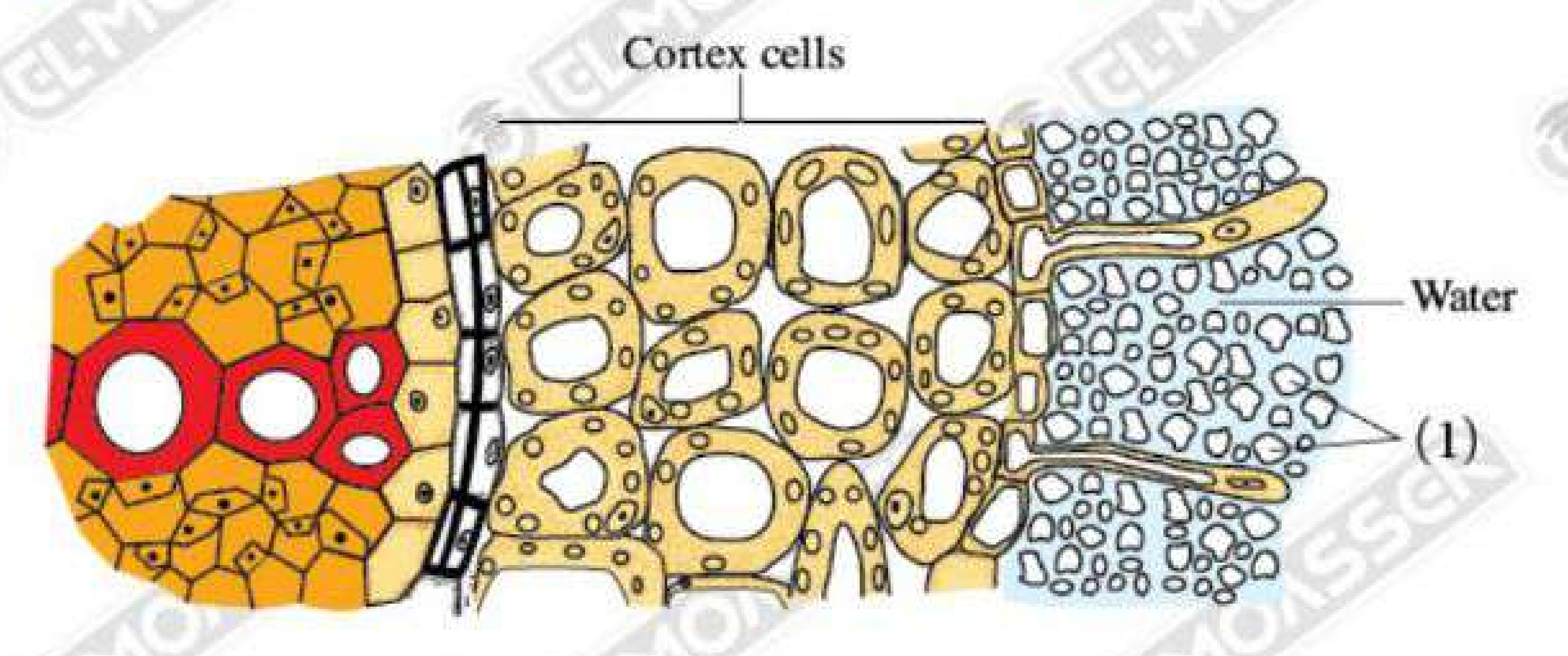
(a) FAD (b) NAD^+ (c) CoA (d) Cytochrome.

20 How far are these statements "liver helps in the formation of blood clot", "liver prevents the occurrence of blood clot" correct ?

(a) The first statement is correct and the second statement is wrong.
(b) The first statement is wrong and the second statement is correct.
(c) The two statements are wrong.
(d) The two statements are correct.

Answer the following questions (21 : 23) :

21 **The following figure illustrates a T.S. in the root of a plant :**



(a) **What happens if** the nitrate, sulphate and phosphate salts disappear from structure no. (1) ?

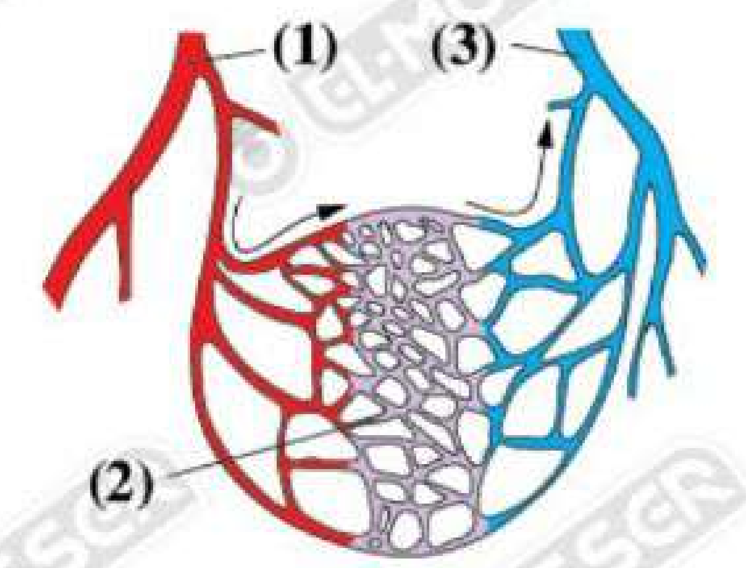
(b) The production of ATP molecules needs the presence of oxygen, **deduce what happens if** structure no. (1) is immersed in water for a relatively long time.

22 **In the following diagram, process no. (1) occurs inside the small intestine, while the two process no. (2) and (3) occur inside the living cell, where compound (Z) increases when feeling with muscular fatigue, in the light of this answer :**

W (12C) —(1)→ 2X (6C) —(2)→ 4Y (3C) —(3)→ 4Z (3C)

What is the number of ATP molecules that are resulted from one molecules of (W) through these processes ?

23 **The opposite figure represents a network of blood vessels in the body :**



(a) **What** is the functional suitability of structure no. (2) ?

(b) **Which** of these structures contain valves that control the passage of the blood ?

Model 8



Al-Fayoum Governorate
«West Al-Fayoum Directorate»

Choose the correct answer (1 : 20) :

1 All the following living organisms feed by similar way, except ....

ⓐ eagles. ⓑ horse. ⓒ *Bilharzia*. ⓓ cattle.

2 The parts of xylem vessels which have no lignin are ....

ⓐ sieve tubes. ⓑ tracheids. ⓒ lenticels. ⓓ pits.

3 Lactose sugar digestion starts and ends in ....

ⓐ small intestine. ⓑ stomach. ⓒ oesophagus. ⓓ mouth.

4 Amino acids enter the cellular respiration in the form of ....-carbon molecule.

ⓐ mono ⓑ di ⓒ tri ⓓ tetra

5 The tissue which is responsible for making the plant stem standing and elastic is ....

ⓐ pericycle. ⓑ phloem. ⓒ starch sheath. ⓓ cambium.

6 .... is from micro-nutrients for plant which work as an inhibitor for enzyme.

ⓐ Nitrogen ⓑ Carbon ⓒ Copper ⓓ Phosphorus

7 When the blood flows in a wrong path through mitral valve, so the blood is received in .... chamber.

ⓐ right ventricle ⓑ left ventricle ⓒ right atrium ⓓ left atrium

8 The quantity of ATP that is resulted from oxidation of 2 molecules of glucose from aerobic respiration inside mitochondria is ....

ⓐ 4 ⓑ 76 ⓒ 38 ⓓ 8

9 The damage root hairs are replaced from .... in root.

ⓐ growing tip ⓑ region of cellular division

ⓒ stable regions ⓓ elongation zone

10 Which of the following blood vessels contains the higher percentage of glucose ?

ⓐ Aorta. ⓑ Pulmonary artery.
ⓒ Hepatic portal vein. ⓓ Hepatic vein.

11 The walls of plant cells absorb water by ··············· phenomenon.

ⓐ osmosis ⓑ imbibition ⓒ permeability ⓓ diffusion

12 The systematic circulation starts from the left ventricle and ends at ···············

ⓐ left atrium. ⓑ right ventricle. ⓒ right atrium. ⓓ liver.

13 Enzymes which decompose protein into polypeptides chain work at ···············

ⓐ stomach and oesophagus. ⓑ stomach and duodenum.
ⓒ stomach and mouth. ⓓ pancreas and mouth.

14 The presence of continuous column of water inside xylem vessels, due to ···············

ⓐ transpiration pull. ⓑ imbibition.
ⓒ cohesion force. ⓓ adhesion force.

15 The first fixed organic compound from photosynthesis process is ···············

ⓐ phosphoglyceraldehyde. ⓑ glucose.
ⓒ NADP ⓓ adenosine triphosphate.

16 In which parts of the human digestive canal the enzyme works with a maximum rate at pH = 2.5 ?

ⓐ Large intestine. ⓑ Small intestine. ⓒ Stomach. ⓓ Mouth.

17 When blood platelets touch rough surface ··············· liberates in blood.

ⓐ thrombin ⓑ prothrombin
ⓒ fibrinogen ⓓ thromboplastin

18 Which parts of plant leaves uses a large amount of carbon dioxide ?

ⓐ Palisade tissue. ⓑ Parenchyma tissue.
ⓒ Epidermis. ⓓ Phloem tissue.

19 In the absence of oxygen or decrease of its quantity, so the compound of NADH resulted from the division of glucose gives its electrons to .... acid.

ⓐ lactic ⓑ malic ⓒ pyruvic ⓓ citric

20 What is the approximately volume of water in a person's blood has 5 liters of blood ?

ⓐ 3.2 liters. ⓑ 2.9 liters. ⓒ 2.7 liters. ⓓ 2.4 liters.

Answer the following questions (21 : 24) :

21 **Explain :** the blood pressure of human decreases during bleeding.

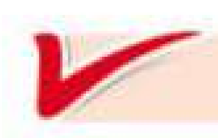
22 **What happens when :** oxygen is found in a large amount inside the muscles after the muscle fatigue ?

23 **What happens when** the convolutions disappear from the large intestine ?

24 **Water transport from the root to leaves as the following order :**

Cortex ⟶ Stomata ⟶ Mesophyll tissue ⟶ Root hair ⟶ Xylem.

Is this statement true or false ? With explanation.



Answers of Final Exam 1

Cairo Governorate
«Al-Nozha Educational Administration»

1 ⓑ iron.
2 ⓑ red blood corpuscles.
3 ⓒ keep it permanently opened.
4 ⓓ carnivores.
5 ⓓ Left ventricle.
6 ⓒ The division of cambium cells.
7 ⓒ transfer the absorbed light into chlorophyll (A).
8 ⓒ 3
9 ⓐ 1
10 ⓑ Liver.
11 ⓑ egg yolk.
12 ⓓ semi-lunar
13 ⓒ heparin
14 ⓐ 0
15 ⓑ Companion cells.
16 ⓒ Palisade tissue.
17 ⓒ alveolus.
18 ⓑ Anabolism.
19 ⓑ 4
20 ⓐ low

21 Liver has a role in digestion in which it secretes bile juice that converts fats into emulsified fats. Also, it has a role in blood clotting where it secretes prothrombin protein which changes into thrombin.

22 The products of photosynthesis (glucose and oxygen) are used in respiration process to produce carbon dioxide and water which are used in photosynthesis process.

23 * **(A)** Pepsin. **(B)** Trypsin.
* Blood route.

Answers of Final Exam 2

Cairo Governorate
«Al-Zaytun Educational Zone»

1 ⓒ Fructose 1,6 diphosphate
2 ⓐ The two statements are correct.
3 ⓒ Heparin.
4 ⓐ Stomach and small intestine.
5 ⓑ two
6 ⓑ (2).
7 ⓐ Pancreas.
8 ⓒ
9 ⓑ A blood vessel buried among muscles.
10 ⓒ The dark reactions in both of them.
11 ⓐ Red blood cells.
12 ⓒ Fats.
13 ⓓ amylase.
14 ⓒ Iodine.
15 ⓓ it equals to water column pressure in xylem vessel.
16 ⓓ (2) only.
17 ⓒ Cellulose.
18 ⓒ Stomata.
19 ⓐ
20 ⓒ aorta artery.

21 **(a)** No. (2) : Pancreas.
(b) This is due to :
- The presence of pepsinogen in an inactive form which is activated only after being secreted from the cells of stomach, and when it is mixed with HCl acid in the cavity of stomach.

- The presence of heavy mucous secretions of the inner wall of stomach which protect it against the effect of digestive enzymes.

22 **The statement is wrong** / Because the vascular bundle of the stem contains cambium (not found in the leaf), in addition to xylem and phloem which are found in both stem and leaf.

23 To increase the respiration surface area and the occurrence of gas exchange between the alveolar air and blood in the surrounding blood capillaries.

Answers of Final Exam 3

Cairo Governorate
«Nasr City - East Educational Zone»

1 ⓒ pharynx.

2 ⓓ Parasites.

3 ⓒ Number of phosphate groups.

4 ⓒ Cambium.

5 ⓒ left ventricle.

6 ⓓ absorbed.

7 ⓑ blood with high pressure.

8 ⓑ Calcium salts.

9 ⓑ 8

10 ⓐ oesophagus and stomach.

11 ⓒ Hepatic portal vein.

12 ⓑ Amylase.

13 ⓓ Diffusion.

14 ⓓ The innermost row of cells in cortex.

15 ⓒ Respiratory enzymes.

16 ⓑ Two times.

17 ⓓ Breaking down of blood platelets inside the blood vessel.

18 ⓐ 2

19 ⓓ Companion cells.

20 ⓐ CO_2

21

P.O.C.	Villi	Convolutions
Site	Ileum in small intestine.	Large intestine.
Function	They are responsible for the absorption of the digested food substances, then transferred to blood or lymph.	They increase the surface area to help in the absorption of water and some salts to get semi-solid faeces.

22 As the digested food (glucose and amino acids) that is absorbed from the small intestine passes first to the liver, in order to filter some food substances that exceed the body needs, therefore some changes occcur inside the liver, where monosaccharides, such as glucose converted into glycogen to be stored, while the spleen is the body's grave, in which the old red blood cells after being broken and ending their lifespan are trapped.

23 The plant will perform the photosynthesis process, where the plant respires and produces CO_2, then the plant consumes CO_2 to accomplish the photosynthesis. So, the limewater doesn't become turbid.



Answers of Final Exam 4

Giza Governorate
«Al - Agouza Educational Zone»

1 ⓓ desert plants and salt water plants.

2 ⓓ Fibrinogen.

3 ⓑ fatty acids.

4 ⓐ superior vena cava.

5 ⓓ Water splitting in the process of photosynthesis.

6 ⓒ *Elodea*.

7 ⓐ water.

8 ⓓ it is equal to the pressure of the water column in the xylem vessels.

9 ⓒ Oxidative phosphorylation.

10 ⓑ spongy tissue.

11 ⓑ Dark reactions only.

12 ⓒ meat.

13 ⓑ energy consumption.

14 ⓑ Carbo-amino haemoglobin

15 ⓐ epithelial layer.

16 ⓒ Lenticels

17 ⓒ WBCs

18 ⓐ Liver.

19 ⓒ Certain enzymes.

20 ⓒ Enterokinase.

21 Dust will be filtered by hairs in the nose, and trachea where cilia will beat upwards to filter air by moving the small foreign bodies to the pharynx, to be swallowed.

22

Process	Location
Photosynthetic phosphorylation :	Occurs in the grana inside the chloroplast.
Oxidative phosphorylation :	Occurs inside the mitochondria (inner membrane).

23 As the root hairs secrete viscous substance which helps them to find their way easily among the soil particles and also it helps them to stick to the soil particles, and so they can fix the plant into the soil, besides they regenerate continuously from the elongation zone.

24 It creates an acidic medium (pH = 1.5 : 2.5) inside the stomach, which leads to :
- Stopping the action of ptyalin enzyme.
- Killing the harmful bacteria that may enter with food.
- Activating the pepsinogen enzyme into its active form (pepsin).

Answers of Final Exam 5

Alexandria Governorate
«Middle Educational Zone»

1 ⓐ Egg white.

2 ⓐ Palisade tissue.

3 ⓑ presence of energy stored in lactic acid.

4 ⓒ oxidation and reduction reactions.

5 ⓒ Fats.

6 ⓐ the site of stomata.

7 ⓐ the first > 7 gm, and the second < 7 gm.

8 ⓒ Cuscuta plant doesn't have true roots.

9 ⓑ pharynx.

10 ⓐ diffusion

11 ⓓ that their walls contain tiny pores.

12 ⓒ Temperature and oxygen increase.

13 (c) rough and long.

14 (b) blood capillaries.

15 (d) exudation.

16 (a) sphincter voluntary muscle.

17 (d) trypsin

18 (a) Mitral valve and aortic valve.

19 (c)

20 (d) The presence of large numbers of mitochondria.

21 **This statement is wrong** / As water transfers from roots to leaves as the following arrangement : root hair – cortex – xylem – mesophyll tissue – stomata.

22 The electron transport chain doesn't occur in cytosole, because there are no cytochromes which are present only in the inner membrane of mitochondria.

23 As the digested food (glucose and amino acids) that is absorbed from the small intestine passes first to the liver, in order to filter some food substances that exceed the body needs, therefore some changes occur inside the liver, where monosaccharides such as glucose converted into glycogen to be stored.

Answers of Final Exam 6

Sharkia Governorate
«10th of Ramadan Educational Directorate»

1 (b) Plant.

2 (c) left ventricle.

3 (b) carbohydrates.

4 (b) 6

5 (a) green plastids.

6 (b) glucose 6-phosphate.

7 (d) The presence of cohesion force.

8 (d) 2C

9 (a) blood with high pressure.

10 (c) stomata.

11 (b) Red blood cells.

12 (c) Production of ATP

13 (c) photosynthesis.

14 (b) hepatic portal vein.

15 (c) phloem

16 (c) oxidation.

17 (c) Glucose and vitamins.

18 (c) O_2

19 (b) small intestine.

20 (b) osmosis.

21 The blood will return back in the veins and will not be directed towards the heart, because the valves always work on the passage of the blood in one direction, so that a disturbance in the blood flow will occur in limbs.

22 They can live without stomach, where stomach digests the protein substances only. So, when removing the stomach, the small intestine completes the job by connecting the oesophagus to the duodenum where the digestion of all food substances is completed, then the absorption of digested food occurs in the ileum (by villi) and transporting it to the blood or lymph to be distributed to all the body cells.

23 To increase the respiration surface area and the occurrence of gas exchange between the alveolar air and blood in the surrounding blood capillaries.

24 Because it has no chlorophyll to do photosynthesis process. So, it depends on the other organism (host) for building its body and continue its life by getting the food from the host.



Answers of Final Exam 7

Ismailia Governorate
«Science Inspection»

1 ⓒ the plant performs cellular respiration.

2 ⓑ Amylase.

3 ⓒ

4 ⓒ Opening of atrio-ventricular valves.

5 ⓒ Oxygen enters in the structure of all the photosynthesis products.

6 ⓐ From foot to heart.

7 ⓑ Amino acids.

8 ⓑ protein

9 ⓑ 19 : 1

10 ⓓ O_2 from (B) to (A).

11 ⓑ Planting its roots in a moist soil.

12 ⓒ Small intestine.

13 ⓐ Left atrium.

14 ⓓ adenosine triphosphate molecule.

15 ⓓ hydrolysis / absorption into the lymph / entering the cell / catabolism.

16 ⓐ

17 ⓑ Fatty acids.

18 ⓓ parasympathetic nerve

19 ⓑ NAD^+

20 ⓓ The two statements are correct.

---

21 **(a)** Carbohydrates will not be converted into protein.

(b) Water molecules will replace O_2 that is present among soil particles, so the plant will not be able to absorb O_2 which affects the absorption of some minerals from the soil by active transport, and the plant respires anaerobically (alcoholic fermentation), producing ethyl alcohol which is an organic solvent that dissolves the plant tissues. So, the plant will die.

---

22 Number of ATP molecules equals 4 molecules.

---

23 **(a)** The walls of structure no. (2) are thin and the presence of tiny pores among their cells help in the rapid exchange of substances between the blood and tissue cells.

(b) Structure no. (3).

Answers of Final Exam 8

Al-Fayoum Governorate
«West Al-Fayoum Directorate»

1 ⓒ *Bilharzia*.

2 ⓓ pits.

3 ⓐ small intestine.

4 ⓑ di

5 ⓐ pericycle.

6 ⓒ Copper

7 ⓓ left atrium

8 ⓑ 76

9 ⓓ elongation zone

10 ⓒ Hepatic portal vein.

11 ⓑ imbibition

12 ⓒ right atrium.

13 ⓑ stomach and duodenum.

14 ⓒ cohesion force.

15 ⓐ phosphoglyceraldehyde.

16 ⓒ Stomach.

17 ⓓ thromboplastin

18 ⓐ Palisade tissue.

19 ⓒ pyruvic

20 ⓓ 2.4 liters.

21 As the occurrence of bleeding leads to the loss of a large amount of blood, leading to a decrease in the blood volume in the body, therefore the blood pressure decreases.

22 Lactic acid will be oxidized into pyruvic acid again when oxygen is available, then it is converted into acetyl CoA to complete the stages of aerobic cellular respiration and produce energy.

23 The body will lose (excrete) a high percentage of mineral salts and water with the faeces. So, they will lose their semi-solid shape.

24 **This statement is false /** As water transports from the root to leaves, as follows :
Root hair ⟶ Cortex ⟶ Xylem ⟶ Mesophyll tissue ⟶ Stomata.



كيفية طباعة صفحات معينة من ملف معين



مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9

خطوة 1

خطوة 2
اختيار اسم الطابعة بتاعتك

خطوة 3
كتابة الصفحات المراد طباعتها
نكتب رقم 4 ثم نكتب الشرطة دي – ثم نكتب 9

خطوة 4
اختيار نوع الورق

خطوة 5
اختيار A4

خطوة 6